

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 16.03.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/11F2100R493
Type number : 0 460 414 096
Customer Part-No. :

Customer-specific information
Customer : FIAT-AUTO

Engine : M711 KT 19.L

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 116

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 6.00...6.40
AFB/AFB
valve Volt: 12

AO1

Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 7.10...7.50
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1750
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 62.50...63.50
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 750
Del. quantity cm3/
1000S.: 44.00...45.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
1000S.: 6.00...10.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2400
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 30.00...34.00
KSB/AFB
valve Volt: 12
Timing valve Volt: 2
Shutoff
electromagnet Volt: 12

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Start:

Speed 1/min: 100
Del. quantity cm³/: 31.00...33.00
mind 1000S.: -
KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: -
Inj.-qty. cm³/
difference 1000S.: -8.00...10.00 #
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1500
Charge press hPa: -
Supply pump
pressure
difference bar: - 0.10..0.30#
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 7.70...8.50
mm: (7.20...9.00)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 6.00...6.40
mm: (5.50...6.90)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 1.90...2.70
mm: (1.40...3.20)

KSB/AFB
valve Volt: 12

A02

Shutoff
electromagnet Volt: 12
8th speed 1/min: 1000
Charge press. hPa: 1000
TD travel mm: 3.60...5.60 B
mm: (3.40...5.80)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
9th speed 1/min: 450
Charge press. hPa: 1000
TD travel mm: 2.90...3.10 A
mm: (2.00...4.00)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.10...7.50
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure bar: 8.20...8.80

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 750
Charge press. hPa: 1000

Supply-pump
pressure bar: 5.20...5.80
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity cm³/10s: 88.90...133.40
cm³/10s: (75.90...158.40)
2nd speed 1/min: 2100
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Overflow : 97.30...180.70
quantity cm³/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750*
Charge-air pressure-setting
point hPa: 400
LDA-stroke mm: 7.4
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 63.50...64.50
1000S.: (60.00...68.00)
2nd speed 1/min: 2650
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 2500
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.00...23.00
1000S.: (14.00...26.00)
5th speed 1/min: 2400
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...34.00
1000S.: (26.00...38.00)
9th speed 1/min: 2100
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 59.00...63.00
1000S.: (57.00...65.00)
12th speed 1/min: 1750
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 62.50...63.50
1000S.: (59.50...66.50)
15th speed 1/min: 1500
Charge press. hPa: 1000

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 61.00...66.00
1000S.: (59.50...67.50)
18th speed 1/min: 750
Charge press. hPa: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 44.00...45.00
1000S.: (41.00...48.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: -
KSB/AFB
valve Volt: -

Idle delivery:

1st speed 1/min: 450
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...10.00
1000S.: (3.00...13.00)
Dispersion cm³/: 6.0
1000S.: (6.5)
2nd speed 1/min: 500
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 470
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...7.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
Charge press. hPa: -
Inj.-qty. cm³/ : -5.0...13.0 "
difference 1000S.: -

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: -
Inj.-qty. cm³/: MAX.
difference 1000S.: 4.00...6.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1500
Charge press. hPa: -
TD-travel : -0.5...0.7 "
difference mm: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: -
TD-travel : - 0.4...1.2 "
difference mm: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16.90...18.90
1000S.: (15.40...20.40)

Automatic starting fuel delivery:

1st speed 1/min: 250
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 70.00...100.00
1000S.: -

2nd speed 1/min: 450
KSB/AFB
valve Volt: 12

A04

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000S.: -

3rd speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.00...85.00
1000S.: (50.00...90.00) K

4th speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.00...33.00
1000S.: (25.00...40.00) W

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: K-OT
MS	mm: 0.9
MS1	mm: 1.18
SVS max.	mm: 1.4
LDA stroke	mm: 7.4

Ajustement Potentiometer:

Angle for
pot. °: 12 MM
Supply voltage
pot. volt: 5.0
Output volt
pot. volt: 2.0

Remarks:

:
:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

A = KSB adjustment point
B = KSB curve point

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 08.03.93
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R419-3
Type number : 0 460 426 204
Customer Part-No. : 391 3348

Customer-specific information
Customer : CDC

Engine : 6 BTA 590A

Power KW: 118
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.25
mm: +0,02(0,06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

A06

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.60...2.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 6.30...6.90
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 84.00...85.00
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 55.50...56.50
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 5.0
1000S.: (6.0)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm³/
1000S.: 12.00...16.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1325
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 75.00...81.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm³/: 100.00...160.00
mind 1000S.: 100.0
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.30...3.10
mm: (2.00...3.40)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.60...2.00
mm: (1.10...2.50)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 850
Charge press hPa: 1000
TD travel mm: 0.80...1.60
mm: (0.50...1.90)

Shutoff
electromagnet Volt: 12
8th speed 1/min: 450
Charge press. hPa: -
TD travel mm: 2.00...3.00
mm: (1.80...3.20)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 850
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.70...6.30
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.30...6.90
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.40...8.00
Shutoff

electromagnet Volt: 12
4th speed 1/min: 500
Charge press. hPa: 1000

Supply-pump
pressure bar: 3.90...4.50
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700*
Charge-air pressure-setting
point hPa: 230
LDA-stroke mm: 7.0
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 66.00...67.00
1000S.: (62.50...70.50)

2nd speed 1/min: 1480
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1430
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)

5th speed 1/min: 1325
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 75.00...81.00
1000S.: (72.00...84.00)

9th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.50...88.50
1000S.: (84.00...90.00)

10th speed 1/min: 1050
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 87.00...90.00
1000S.: (85.00...92.00)
12th speed 1/min: 850
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.00...86.00
1000S.: (82.50...88.50)
18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 56.50...57.50
1000S.: (53.00...61.00)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1250
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...16.00
1000S.: (9.00...19.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 460
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 110.00...170.00
1000S.: (110.00...170.00)

2nd speed 1/min: 240
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...80.00
1000S.: (50.00...80.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 100.00...160.00
1000S.: (100.00...160.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: K-0T
MS1 mm: 1.3...1.5
SVS max. mm: 2.3
LDA stroke mm: 7.0
Ya mm: 34.8...38.8
Yb mm: 43.7...49.3

Remarks:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 08.03.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1250R419-4
Type number : 0 460 426 205
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6 BTA 590A

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.25
mm: +0.02(0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

A09

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.60...2.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 6.30...6.90
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 85.00...86.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 56.50...57.50

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 5.0
1000S.: (6.0)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 12.00...16.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1325
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 75.00...81.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 100.00...160.00
mind 1000S.: 100.0

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.30...3.10
mm: (2.00...3.40)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.60...2.00
mm: (1.10...2.50)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 850
Charge press hPa: 1000
TD travel mm: 0.80...1.60
mm: (0.50...1.90)

Shutoff
electromagnet Volt: 12
8th speed 1/min: 450
Charge press. hPa: -
TD travel mm: 2.00...3.00
mm: (1.80...3.20)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 850
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.70...6.30

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.30...6.90

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.40...8.00

Shutoff
electromagnet Volt: 12
4th speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.90...4.50

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1250
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700*
Charge-air pressure-setting
point hPa: 230
LDA-stroke mm: 7.0
Shutoff
electromagnet Volt: 12
Del. quantity cm³/
1000s.: (66.00...67.00
62.50...70.50)

2nd speed 1/min: 1480
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/
1000s.: (0.00...3.00
0.00...3.00)

3rd speed 1/min: 1430
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/
1000s.: (15.00...45.00
15.00...45.00)

5th speed 1/min: 1325
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/
1000s.: (75.00...81.00
72.00...84.00)

9th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/
1000s.: (85.50...88.50
84.00...90.00)

10th speed 1/min: 1050
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/
1000s.: (87.00...90.00
85.00...92.00)

12th speed 1/min: 850

Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 85.00...86.00
1000S.: (82.50...88.50)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 56.50...57.50
1000S.: (53.00...61.00)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1250
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...16.00
1000S.: (9.00...19.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 460
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 110.00...170.00
1000S.: (110.00...170.00)

2nd speed 1/min: 240
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...80.00
1000S.: (50.00...80.00)

4th speed 1/min: 100

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Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 100.00...160.00
1000S.: (100.00...160.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: K-OT
MS1 mm: 1.3...1.5
SVS max. mm: 2.3
LDA stroke mm: 7.0
Ya mm: 34.8...38.8
Yb mm: 43.2...48.8

Remarks:
Operate control lever after each 3346
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 08.03.93
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R498
Type number : 0 460 426 211
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6 BTAA 5.9B

Power kW: 118
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1,4
mm: $\pm 0,02(0,06)$

Outlet : D

Injection-pump setting values

A12

Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.50...1.90
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 6.30...6.90
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 84.00...85.00
Shutoff
electromagnet Volt: 24
Dispersion cm³/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 69.50...70.50
Shutoff
electromagnet Volt: 24
Dispersion cm³/: 5.0
1000S.: (6.0)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm³/
1000S.: 6.00...10.00
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1380
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 57.50...63.50
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 100.00...160.00
mind 1000S.: 100.0
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.30...3.10
mm: (2.00...3.40)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.50...1.90
mm: (1.00...2.40)

Shutoff
electromagnet Volt: 24
7. Rotacao 1/min: 850
Charge press. hPa: 1000
TD travel mm: 0.00...1.40
mm: -

Shutoff
electromagnet Volt: 24
8th speed 1/min: 450
Charge press. hPa: -
TD travel mm: 2.00...3.00
mm: (1.80...3.40)

KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 850
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.90...6.50
Shutoff

electromagnet Volt: 24
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.30...6.90
Shutoff

electromagnet Volt: 24
3rd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.30...7.90
Shutoff

electromagnet Volt: 24
4th speed 1/min: 500
Charge press. hPa: 1000

Supply-pump
pressure bar: 3.90...4.50
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1250
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600*
Charge-air pressure-setting
point hPa: 450
LDA-stroke mm: 6.5
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 76.00...77.00
1000S.: (72.50...80.50)

2nd speed 1/min: 1485
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1465
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 10.00...30.00
1000S.: (10.00...30.00)

5th speed 1/min: 1380
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 57.50...63.50
1000S.: (54.50...66.50)

9th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 82.00...85.00
1000S.: (80.50...86.50)

10th speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 83.50...86.50
1000S.: (81.50...88.50)
12th speed 1/min: 850
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 84.00...85.00
1000S.: (81.50...87.50)
18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 69.50...70.50
1000S.: (66.00...74.00)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1250
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 6.00...10.00
1000S.: (3.00...13.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 410
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 110.00...170.00
1000S.: (110.00...170.00)

2nd speed 1/min: 240
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...90.00
1000S.: (60.00...90.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 100.00...160.00
1000S.: (100.00...160.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: K-OT
MS1 mm: 1.19-1.44
SVS max. mm: 3.7
LDA stroke mm: 6.2
Ya mm: 34.8...38.8
Yb mm: 43.6...49.2

Remarks:

:
Operate control lever after each
manifold-pressure compensator pressure
charge.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 08.03.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1250R498-1
Type number : 0 460 426 212
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6 BTAA 5.9B

Power KW: 96
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1,15
mm: +0.02(0.06)

Outlet : D

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.50...1.90
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 6.30...6.90
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 71.50...72.50
Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 59.50...60.50
Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: (6.0)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 11.00...15.00
Shutoff
electromagnet Volt: 24
Del. quantity cm3/
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1400
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 42.00...48.00
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 100.00...160.00
mind 1000S.: 100.0
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.10...2.90
mm: (1.80...3.20)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.50...1.90
mm: (1.00...2.40)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 850
Charge press hPa: 1000
TD travel mm: 0.50...1.30
mm: (0.20...1.60)

Shutoff
electromagnet Volt: 24
8th speed 1/min: 450
Charge press. hPa: -
TD travel mm: 2.00...3.00
mm: (1.80...3.20)

KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 850
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.70...6.30

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.30...6.90

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.20...7.80

Shutoff
electromagnet Volt: 24
4th speed 1/min: 500
Charge press. hPa: 1000

Supply-pump
pressure bar: 3.90...4.50
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600*
Charge-air pressure-setting
point hPa: 450
LDA-stroke mm: 4.0
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 68.00...69.00
1000S.: (64.50...72.50)
2nd speed 1/min: 1490
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 1445
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)
5th speed 1/min: 1400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 42.00...48.00
1000S.: (39.00...51.00)
9th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 73.00...77.00
1000S.: (72.00...78.00)
10th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 72.50...75.50
1000S.: (70.50...77.50)
12th speed 1/min: 850
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 71.50...72.50
1000S.: (69.00...75.00)
18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 59.50...60.50
1000S.: (56.00...64.00)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1250
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 11.00...15.00
1000S.: (8.00...18.00)
Dispersion cm³/: 5.5
1000S.: (7.0)
2nd speed 1/min: 400
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 110.00...170.00
1000S.: (110.00...170.00)

2nd speed 1/min: 200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 55.00...85.00
1000S.: (55.00...85.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 100.00...160.00
1000S.: (100.00...160.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: K-OT
MS1 mm: 1.3...1.5
SVS max. mm: 3.7
LDA stroke mm: 4,0
Ya mm: 34.8...38.8
Yb mm: 44.9...50.1

Remarks:

:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 08.03.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1250R498-2
Type number : 0 460 426 213
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6 BTA 5.9B

Power KW: 106
Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.20
mm: +0.02(0.06)

Outlet : D

Injection-pump setting values

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Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.90...2.30
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 6.30...6.90
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 82.50...83.50
Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 67.00...68.00
Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: (6.0)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 11.00...15.00
Shutoff
electromagnet Volt: 24
Del. quantity cm3/
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1350
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 55.00...61.00
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 100.00...160.00
mind 1000S.: 100.0
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.40...3.20
mm: (2.10...3.50)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.90...2.30
mm: (1.40...2.80)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 850
Charge press hPa: 1000
TD travel mm: 0.60...1.40
mm: (0.30...1.70)

Shutoff
electromagnet Volt: 24
8th speed 1/min: 450
Charge press. hPa: -
TD travel mm: 2.00...3.00
mm: (1.80...3.20)

KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 850
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.70...6.30

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.30...6.90

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.20...7.80

Shutoff
electromagnet Volt: 24
4th speed 1/min: 500
Charge press. hPa: 1000

Supply-pump
pressure bar: 3.90...4.50
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600*
Charge-air pressure-setting
point hPa: 450
LDA-stroke mm: 4.0
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 73.00...74.00
1000S.: (69.50...77.50)

2nd speed 1/min: 1460
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1425
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)

5th speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.00...61.00
1000S.: (52.00...64.00)

9th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 77.00...81.00
1000S.: (76.00...82.00)

10th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 80.00...83.00
 1000S.: (78.00...85.00)
 12th speed 1/min: 850
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 82.50...83.50
 1000S.: (80.00...86.00)
 18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 67.00...68.00
 1000S.: (63.00...71.50)

Mech. shutoff:
 Mech. Abst.ellung:

1st speed 1/min: 1250
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 11.00...15.00
 1000S.: (8.00...18.00)
 Dispersion cm³/: 5.5
 1000S.: (7.0)
 2nd speed 1/min: 400
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 85.00...145.00
 1000S.: -

2nd speed 1/min: 200
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 55.00...85.00
 1000S.: (55.00...85.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 70.00...130.00

Shutoff electromagnet:

Cut-in
 min voltage : 20.0
 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.6...3.8
KF	mm: K-OT
MS1	mm: 1.3...1.5
SVS max.	mm: 3.7
LDA stroke	mm: 4.0
Ya	mm: 34.8...38.8
Yb	mm: 44.9...50.1

Remarks:

:
 Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 03.03.93
replaces : 03.12.91
Calibrating oil : ISO-4113
Injection pump : VE4/8F2300R317-2
Type number : 0 460 484 030
Customer Part-No. :

Customer-specific information
Customer : RNUR

Engine : F8Q - 706

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 4.10...4.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250

A21

Setting value bar: 4.50...5.10
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 31.00...32.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 410
Del. quantity cm3/
1000S.: 6.50...10.50

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 1.00...5.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
Del. quantity cm3/
1000S.: 22.00...28.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...70.00
mind 1000S.: 40.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference 1000S.: - 7.70...9.70 #

Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)

1.Speed 1/min: 1250

Supply pump
pressure difference bar: - 0.1..0.30 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 7.40...8.20
mm: (7.10...8.50)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 4.10...4.50
mm: (3.60...5.00)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 1.70...2.50
mm: (1.40...2.80)

Shutoff
electromagnet Volt: 12
8th speed 1/min: 500
TD travel mm: 1.90...4.30 B
mm: (1.90...4.30)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
9th speed 1/min: 310
TD travel mm: 0.60...3.00 A
mm: (0.60...3.00)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 3.10...3.70
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 4.50...5.10
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Supply-pump
pressure bar: 6.40...7.00
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

A22

1st speed 1/min: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2950
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: (0.00...5.00)
3rd speed 1/min: 2650
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...15.00
1000S.: (6.00...16.00)

5th speed 1/min: 2450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 22.00...28.00
1000S.: (21.00...29.00)

9th speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.50...33.50
1000S.: (30.20...34.80)

10th speed 1/min: 2000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.30...32.30
1000S.: (29.00...33.60)

11th speed 1/min: 1625
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 29.70...32.70
1000S.: (28.90...33.50)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.00...32.00
1000S.: (29.20...33.80)

20th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.10...33.10
1000S.: (29.30...33.90)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 410
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 410
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.50...10.50
1000S.: (4.50...12.50)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...11.00
1000S.: (5.00...13.00)

Residual:

1.Rotacao 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 1.00...5.00
1000S.: (1.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : - 9.0..13.0 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³/ : + 2.0..8.0 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : -0.30..0.50 "
difference mm: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
TD-travel : - 0.3...0.7 "

SP press.-dif.measurement:
pompa di mandata (FP):

A23

1st speed 1/min: 1250
Supply pump-
pressure : - 0.2...0.6 '
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 210
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000S.: (45.00...75.00)

2nd speed 1/min: 310
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...70.00
1000S.: (40.00...70.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.3...5.7
MS mm: 1.1...1.5
SVS max. mm: 1.8
Ya mm: 32.6...36.6
Yb mm: 65.7...79.3

Remarks:

A = KSB adjustment point
B = KSB curve point

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 15.03.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2300R430
Type number : 0 460 484 046
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1.9L. A3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.00...5.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure

A24

Speed 1/min: 1250
Setting value bar: 4.90...5.70
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 35.5...36.5
Shutoff
electromagnet Volt: 12.0
Dispersion cm3/
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
1000S.: 7.00...9.00
Shutoff
electromagnet Volt: 12.0
Del. quantity cm3/
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 5.50...6.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Del. quantity cm3/
1000S.: 10.00...14.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...61.00
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 12
Inj.-qty. cm3/
difference 1000S.: - 4.50...10.5 *
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)

1. Speed 1/min: 1250
Supply pump
pressure difference bar: -0.10...0.30*
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 7.30...9.30
mm: -

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 3.00...5.00
mm: -

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 0.30...2.30
mm: -

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 3.50...4.30
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250

Supply-pump
pressure bar: 4.90...5.70
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 2200

Supply-pump
pressure bar: 7.60...8.40
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)

2nd speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Overflow : 55.60...152.90
quantity cm³/10s: (41.70...166.80)

Delivery-quant. and breakaway char.:

A25

2nd speed 1/min: 2800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000s.: -

5th speed 1/min: 2600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000s.: (8.00...16.00)

8th speed 1/min: 2500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 18.00...28.00
1000s.: (17.00...29.00)

9th speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.50...33.50
1000s.: (30.30...34.70)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.50...36.50
1000s.: (33.80...38.20)

15th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.50...33.50
1000s.: (29.00...35.00)

20th speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.50...36.50
1000s.: (29.00...39.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000s.: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000s.: (4.00...12.00)

High Idle:

1st speed 1/min: 525
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

Residual:

1. Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.50...6.50
1000S.: (4.00...8.00)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...8.00
1000S.: (4.50...9.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : MAX ...3.00 #
difference 1000S.: -
Shutoff
electromagnet Volt: 12.

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : -1.3...2.30 #
difference mm: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : -0.7...1.50 #
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...69.00
1000S.: (35.00...69.00)

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 18.00...38.00
1000S.: (18.00...38.00)

4th speed 1/min: 100

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...61.00
1000S.: (35.00...61.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.1...5.5
MS mm: 1.2...1.4
SVS max. mm: -

Remarks:

Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

On initial measurement, screw in
residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 03.03.93
replaces : 13.04.92
Calibrating oil : ISO-4113
Injection pump : VE4/8F2300R425-1
Type number : 0 460 484 054
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD9AL Peug. D70

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.50...3.90
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250

A27

Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 29.70...30.70
Shutoff
electromagnet Volt: 12.0
Dispersion cm3/: 2.0
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 9,50...11.50
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 2.50...3.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2650
Del. quantity cm3/
1000S.: 9.00...13.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 42.00...68.00
mind 1000S.: 42.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference 1000S.: - 5.0...7.0 #
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250

Supply pump
pressure difference bar: - 0.1...0.3 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 6.70...7.50
mm: (6.40...7.80)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 3.50...3.90
mm: (3.00...4.40)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 800
TD travel mm: 1.20...2.00
mm: (0.90...2.30)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump pressure bar: 3.30...3.90

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump pressure bar: 5.70...6.30

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2200
Supply-pump pressure bar: 8.20...8.80

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(27.80...97.30)

2nd speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...132.90
(41.70...152.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2900
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 0.00...6.00
1000s.: (0.00...6.00)

5th speed 1/min: 2650
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 9.00...13.00
1000s.: (7.00...15.00)

8th speed 1/min: 2500
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 19.50...25.50
1000s.: (17.50...27.50)

9th speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 32.00...34.00
1000s.: (30.80...35.20)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 29.70...30.70
1000s.: (28.00...32.40)

20th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 29.80...32.80
1000s.: (28.30...34.30)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 2200
Del. quantity cm³: 0.00...3.00
1000s.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³: 0.00...3.00
1000s.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 9.50...11.50
1000s.: (6.50...14.50)

High Idle:

1st speed 1/mi: 475
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 8.50...10.50
1000S.: (5.50...13.50)

Residual:

1. Rotacao 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.50...3.50
1000S.: (1.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : - 3.5...13.5 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³/: MAX.
difference 1000S.: 2.0...8.0 '
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):

1st speed 1/min: 1250
TD-travel : -0.90..1.10 "
difference mm: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
TD-travel : -2.00..3.00 '
difference mm: -
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Supply pump-
pressure : -1.20..1.80 '
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 225
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...71.00
1000S.: (37.00...71.00)

2nd speed 1/min: 350

B01

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...40.00
1000S.: (20.00...40.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.00...68.00
1000S.: (42.00...68.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: K-OT
MS mm: 1.2...1.6
SVS max. mm: 3-1
Ya mm: 18.8...22.8
Yb mm: 82.0...96.0

Remarks:
:
:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 08.03.93
replaces : =
Calibrating oil : ISO-4113
Injection pump : VE4/8F2300R458-2
Type number : 0 460 484 059
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : FQ8-706

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.20...3.60
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 4.40...5.00
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 31.60...32.60
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 410
Del. quantity cm3/
1000S.: 7.50...11.50
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 2.50...3.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450
Del. quantity cm3/
1000S.: 25.5...31.50
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...70.00
mind 1000S.: 40.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference 1000S.: - 10.5...12.5 #
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250

Supply pump
pressure difference bar: - 0.10..0.30#
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
TD travel mm: 1.10...1.90
mm: (0.80...2.20)

electromagnet Volt: 12
2nd speed 1/min: 1250
TD travel mm: 3.20...3.60
mm: (2.70...4.10)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
TD travel mm: 5.80...6.60
mm: (5.50...6.90)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 310
TD travel mm: 1.00...3.40 A
mm: -

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
5th speed 1/min: 500
TD travel mm: 2.20...4.60 B
mm: -

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump pressure bar: 3.10...3.70

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump pressure bar: 4.40...5.00

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2200
Supply-pump pressure bar: 6.30...6.90
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: (41.70...83.40)
(26.70...98.40)

2nd speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: (55.60...139.00)
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 0.00...5.00
-

2nd speed 1/min: 2650
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 10.50...18.50
(9.50...19.50)

3rd speed 1/min: 2450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 25.50...31.50
(24.50...32.50)

4th speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 33.00...35.00
(31.70...36.30)

5th speed 1/min: 2000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 32.50...34.50
(31.20...35.80)

6th speed 1/min: 1625
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 30.10...33.10
(29.30...33.90)

7th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 31.60...32.60
(29.80...34.40)

8th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 30.20...33.20
(29.40...34.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 410

Del. quantity cm³/: 0.00...3.00
1000S.: (MAX. 5.0)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 410
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.50...11.50
1000S.: (5.50...13.50)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...11.00
1000S.: (5.00...13.00)

Residual:

1. Rotacao 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.50...3.50
1000S.: (1.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : -13.2...17.2"
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³/: MAX.
difference 1000S.: 2.00...8.00 '

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : 0.40...0.60 "
difference mm: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
TD-travel : 0.30...0.70 '
difference mm: -

Automatic starting fuel delivery:

1st speed 1/min: 310

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...70.00
1000S.: -

2nd speed 1/min: 210
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...45.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...70.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.5
MS mm: 1.2...1.4
SVS max. mm: 1.5
ALDA stroke mm: MIKROSCH.
FH mm: 10.2 MM
Ya mm: 25.3...29.3
Yb mm: 62.6...74.4

Remarks:

A = KSB adjustment point
B = KSB curve point

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
 Edition : 08.03.93
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/8F2300R425-5
 Type number : 0 460 484 064
 Customer Part-No. :

Customer-specific information
 Customer : PSA

Engine : XUD9 A-L

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Setting value mm: 3.50...3.90
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

B05

Speed 1/min: 1250
 Setting value bar: 5.70...6.30
 Shutoff
 electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
 Del. quantity cm3/
 1000S.: 29.70...30.70
 Shutoff
 electromagnet Volt: 12
 Dispersion cm3/
 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 375
 Del. quantity cm3/
 1000S.: 9.50...11.50
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/
 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
 Del. quantity cm3/
 1000S.: 2.50...3.50
 Shutoff
 electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2650
 Del. quantity cm3/
 1000S.: 9.00...13.00
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm3/: 42.00...68.00
 mind 1000S.: 42.00
 Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Inj.-qty. cm3/
 difference 1000S.: - 5.00...7.00 #
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1250

Supply pump
pressure difference bar: - 0.10..0.30#
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
TD travel mm: 1.20...2.00
mm: (0.90...2.30)

electromagnet Volt: 12
2nd speed 1/min: 1250
TD travel mm: 3.50...3.90
mm: (3.00...4.40)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
TD travel mm: 6.70...7.50
mm: (6.40...7.80)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump pressure bar: 3.30...3.90
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump pressure bar: 5.70...6.30
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 2200
Supply-pump pressure bar: 8.20...8.80
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
cm³/10s: (26.70...98.40)

2nd speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...139.00
cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2900
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 0.00...6.00

2nd speed 1/min: 2650
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 9.00...13.00
cm³/1000S.: (7.00...15.00)

3rd speed 1/min: 2500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 19.50...25.50
cm³/1000S.: (17.50...27.50)

4th speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 32.00...34.00
cm³/1000S.: (30.80...35.20)

5th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 29.70...30.70
cm³/1000S.: (28.00...32.40)

6th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 29.80...32.80
cm³/1000S.: (28.30...34.30)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 2200
Del. quantity cm³/1000S.: 0.00...3.00
cm³/1000S.: (MAX. 5.0)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/1000S.: 0.00...3.00
cm³/1000S.: (MAX. 5.0)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 9.50...11.50
cm³/1000S.: (6.50...14.50)

High Idle:

1st speed 1/mi: 475
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 8.50...9.50
1000S.: (5.50...13.50)

Residual:

1.Rotacao 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.50...3.50
1000S.: (1.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm3/ : - 3.50..12.5"
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm3/: MAX.
difference 1000S.: 2.00...8.00 '

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : 0.90...1.10 "
difference mm: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
TD-travel : 2.00...3.00 '
difference mm: -

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : 1.20...1.80 '
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 20.00...40.00
1000S.: -

2nd speed 1/min: 225
Shutoff
electromagnet Volt: 12

Del. quantity cm3/: 37.00...71.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 42.00...68.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: K-OT
MS mm: 1.3...1.5
Ya mm: 18.8...22.8
Yb mm: 82.0...96.0

Remarks:

:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 09.03.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE5/8F2200L336-7
Type number : 0 460 485 012
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 074.3 (2.4L.)

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 3.80...4.20
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

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Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 6.10...6.70
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 35.50...36.50
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: -

Low-idle speed regulation

Speed 1/min: 415
Del. quantity cm3/
1000S.: 7.00...9.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: -

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 4.50...5.50
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525
Del. quantity cm3/
1000S.: 10.00...14.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...61.00
mind 1000S.: 35.00
KSB/AFB
Valve Volt: 12

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Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1500
 Inj.-qty. cm³/
 difference 1000s.: - 6.00...8.00 #
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1500
 Supply pump
 pressure
 difference bar: -0.10..0.30 #
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
 TD travel mm: 6.30...7.10
 mm: (6.00...7.40)

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1500
 TD travel mm: 3.80...4.20
 mm: (3.30...4.70)

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1000
 TD travel mm: 0.50...1.30
 mm: (0.20...1.60)

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 9th speed 1/min: 500
 TD travel mm: 2.30...2.70
 mm: (1.50...3.50)

KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1000
 Supply-pump
 pressure bar: 4.70...5.30
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 Supply-pump
 pressure bar: 6.10...6.70
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2000
 Supply-pump
 pressure bar: 7.40...8.00
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 500
 Supply-pump
 pressure bar: 4.90...6.10
 KSB/AFB
 valve Volt: -
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (27.80...97.30)
 2nd speed 1/min: 2200
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.90
 quantity cm³/10s: (41.70...154.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2700
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)
 5th speed 1/min: 2525
 KSB/AFB
 valve Volt: 12

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 10.00...14.00
 1000S.: (8.00...16.00)
 8th speed 1/min: 2425
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 18.00...28.00
 1000S.: (17.00...29.00)
 9th speed 1/min: 2200
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.00...32.00
 1000S.: (28.80...33.20)
 12th speed 1/min: 1250
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 35.50...36.50
 1000S.: (33.80...38.20)
 15th speed 1/min: 750
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 32.00...35.00
 1000S.: (30.50...36.50)
 20th speed 1/min: 400
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 32.50...37.50
 1000S.: (30.00...40.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 415
 Del. quantity cm³/: 0.00...3.00
 1000S.: (MAX. 5.0)

Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: 12

Damper set qty.:

LFG-setting:
 solidale con carcassa:
 Idle delivery:

1st speed 1/min: 415

KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.00...9.00
 1000S.: (4.00...12.00)

Residual:

1. Rotacao 1/min: 550
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 4.50...5.50
 1000S.: (3.00...7.00)
 2nd speed 1/min: 500
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 5.00...7.00
 1000S.: (3.50...8.50)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1500
 Inj.-qty. cm³/ : - 5.50..11.5"
 difference 1000S.: (4.5...12.5)
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 Inj.-qty. cm³/: MAX.
 difference 1000S.: 0.00...3.00
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 TD-travel : - 0.60..0.80"
 difference mm: -
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 TD-travel : - 1.1...1.5
 difference mm: -
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):
1st speed 1/min: 1500
Supply pump-
pressure : - 0.6...1.0 '
difference bar: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...69.00
1000S.: (35.00...69.00)

2nd speed 1/min: 380
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...40.00
1000S.: (20.00...40.00)

4th speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...61.00
1000S.: (35.00...61.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.6...5.9
MS mm: 1.2...1.6
Ya mm: 31.8...33.8
Yb mm: 62.4...77.4

Remarks:
Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

On initial measurement, screw in
residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 09.03.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE5/8F2000L524
Type number : 0 460 485 014
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 2.4L. IND.

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.60...3.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.80...6.40
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 36.50...37.50
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 415
Del. quantity cm3/
1000S.: 7.00...9.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2100
Del. quantity cm3/
1000S.: 10.00...14.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...61.00
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1850
TD travel mm: 4.60...5.40
mm: (4.30...5.70)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 2.60...3.00
mm: (2.10...3.50)
Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 0.40...1.20
mm: (0.30...1.50)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1850
 Supply-pump pressure bar: 7.50...8.10
 Shutoff electromagnet Volt: 12

2nd speed 1/min: 1250
 Supply-pump pressure bar: 5.80...6.40
 Shutoff electromagnet Volt: 12

3rd speed 1/min: 750
 Supply-pump pressure bar: 4.40...5.00
 Shutoff electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
 Shutoff electromagnet Volt: 12
 Overflow quantity cm³/10s: 41.70...83.40
 (27.80...97.30)

2nd speed 1/min: 1950
 Shutoff electromagnet Volt: 12
 Overflow quantity cm³/10s: 55.60...139.90
 (41.70...154.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2140
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)

3rd speed 1/min: 2120
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 0.00...12.00
 -

4th speed 1/min: 2100
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 10.00...14.00
 (6.00...18.00)

5th speed 1/min: 1950
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 34.00...36.00
 (32.80...37.20)

6th speed 1/min: 1500
 Shutoff electromagnet Volt: 12

Del. quantity cm³/1000S.: 36.5...38.5
 -

7th speed 1/min: 1250
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 36.50...37.50
 (34.80...39.20)

8th speed 1/min: 750
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 32.00...35.00
 (30.50...36.50)

9th speed 1/min: 600
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 31.00...34.00
 -

Mech. shutoff:
 Electr. shutoff:

1st speed 1/min: 415
 Del. quantity cm³/1000S.: 0.00...3.00
 (MAX. 5.0)

Shutoff electromagnet volt: -

Idle delivery:

1st speed 1/min: 415
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 7.00...9.00
 (4.00...12.00)

2nd speed 1/min: 500
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 0.00...3.00
 -

Automatic starting fuel delivery:

1st speed 1/min: 180
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 35.00...69.00
 (35.00...69.00)

2nd speed 1/min: 380
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 15.00...35.00
 (15.00...35.00)

4th speed 1/min: 100
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 35.00...61.00
 (35.00...61.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.2...3.4
KF	mm: 5.6...6.0
Ya	mm: 34.3...36.3
Yb	mm: 61.0...71.0

Remarks:

⋮

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 03.03.93
replaces : 13.04.92
Calibrating oil : ISO-4113
Injection pump : VE4/9F2200R416
Type number : 0 460 494 273
Customer Part-No. :

Customer-specific information
Customer : RNUR

Engine : J8S - 890 JEEP

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400
Charge press. hPa: 800
Setting value mm: 4.00...4.40
Shutoff
electromagnet Volt: 12

Supply-pump pressure

B15

Speed 1/min: 1400
Charge press hPa: 800
Setting value bar: 5.10...5.70
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1400
Charge press. hPa: 800
Del. quantity cm3/
1000S.: 47.00...48.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 37.00...38.00

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
1000S.: 7.00...11.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2400
Charge press hPa: 800
Del. quantity cm3/
1000S.: 23.00...29.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.00...100.00
mind 1000S.: 60.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 800

TD travel mm: 6.20...7.00
mm: (6.20...7.00)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1400
Charge press hPa: 800
TD travel mm: 4.00...4.40
mm: (3.50...4.90)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
Charge press hPa: 800
TD travel mm: 1.90...2.70
mm: (1.60...3.00)

Shutoff
electromagnet Volt: 12
6th speed 1/min: 1800
Charge press. hPa: 800
TD travel mm: 5.70...6.50
mm: (5.40...6.80)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 2.60...3.20
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1400
Charge press. hPa: 800
Supply-pump
pressure bar: 5.10...5.70
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 800
Supply-pump
pressure bar: 6.90...7.50
Shutoff

electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12
Overflow
quantity cm³/10s: (41.70...83.40)
(26.70...98.40)

2nd speed 1/min: 2000
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Overflow
quantity cm³/10s: (55.60...139.00)
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700*
Charge-air pressure-setting
point hPa: 200
LDA-stroke mm: 5.5
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 41.00...42.00
1000S.: (38.50...44.50)

2nd speed 1/min: 2700
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 2500
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.50...17.50
1000S.: (2.50...17.50)

5th speed 1/min: 2400
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 23.00...29.00
1000S.: (22.00...30.00)

9th speed 1/min: 2000
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 43.40...45.40
1000S.: (42.10...46.70)

12th speed 1/min: 1400
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 47.00...48.00
1000S.: (45.20...49.80)

18th speed 1/min: 600
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...38.00
1000S.: (34.50...40.50)

20th speed 1/min: 1000
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 44.90...47.90
1000S.: (43.40...49.40)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...11.00
1000S.: (5.00...13.00)
Dispersion cm³/: 2.5
1000S.: (3.0)
2nd speed 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.00...7.00
1000S.: (1.00...9.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...100.00
1000S.: (40.00...100.00)
2nd speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...40.00
1000S.: (20.00...40.00)
4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.00...100.00
1000S.: (60.00...100.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.2...3.4
KF	mm: 5.6...6.0
MS	mm: 1.3...1.7
SVS max.	mm: 4.8
LDA stroke	mm: 5.5
TLA-A	mm: 12.7
Ya	mm: 9.9...13.9
Yb	mm: 54.8...69.2

Remarks:

B17

⋮
Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 04.03.93
replaces : 13.04.92
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R445
Type number : 0 460 494 278
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 9 TE-L (Cit.

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 42.00...48.00
Electronically : 40.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3.40...3.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

B18

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.60...6.20
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 53.50...54.50

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.0
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 37.50...38.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400
Charge press hPa: -
Del. quantity cm³/
1000S.: 12.0...14.0

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm³/
1000S.: 6.00...7.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 12.00...16.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 150
Del. quantity cm³/: 37.00...67.00
mind 1000S.: 37.00

Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Charge press hPa: -
 Inj.-qty. cm³/
 difference 1000S.: - 11.0..15.00 #
 Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1250
 Charge press hPa: -
 TD-travel
 difference mm: -0.90..1.10 #
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
 Charge press hPa: 1000
 TD travel mm: 6.10...6.90
 mm: (5.80...7.20)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 Charge press hPa: 1000
 TD travel mm: 3.40...3.80
 mm: (2.90...4.30)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 750
 Charge press hPa: 1000
 TD travel mm: 1.10...1.90
 mm: (0.80...2.20)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 4.40...5.00
 Shutoff

electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 5.60...6.20
 Shutoff

electromagnet Volt: 12
 3rd speed 1/min: 2000

Charge press. hPa: 1000
 Supply-pump
 pressure bar: 7.30...7.90
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 2150
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750*
 Charge-air pressure-setting
 point hPa: 350
 LDA-stroke mm: 5.8
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 46.00...47.00
 1000S.: (43.50...49.50)

2nd speed 1/min: 2750
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...6.00
 1000S.: (0.00...5.90)

5th speed 1/min: 2575
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 12.00...16.00
 1000S.: (10.00...18.00)

8th speed 1/min: 2375
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 33.00...43.00
 1000S.: (32.00...44.00)

9th speed 1/min: 2150
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 49.50...51.50
 1000S.: (48.30...52.70)

10th speed 1/min: 2000
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 51.00...53.00
1000S.: (49.80...54.20)
12th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 53.50...54.50
1000S.: (51.80...56.20)
18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.50...38.50
1000S.: (35.00...41.00)
20th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 46.50...49.50
1000S.: (45.00...51.00)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (STR.MAX.5.0)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: (STR.MAX.5.0)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...14.00
1000S.: (9.00...17.00)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 11.00...13.00
1000S.: (8.00...16.00)

Residual:

1.Rotacao 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...7.00
1000S.: (4.50...8.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/: -9.0...15.0 #
difference 1000S.: -(8.0...18.0) #
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/: MAX.2.0..8.0"
difference 1000S.: -

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
Charge press. hPa: -
TD-travel : - 0.9...1.1 #
difference mm: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: -
TD-travel : - 2.1...2.5 "
difference mm: - (1.6...3.0) "

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Charge press. hPa: -
Supply pump-
pressure : - 0.7...1.50 "
difference bar: -
Shutoff
electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 8,5

1st speed 1/min: 600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 27.0...35.0
1000S.: MIKROSCHALTER

Automatic starting fuel delivery:

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...45.00
1000S.: (25.00...45.00)

3rd speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...56.00
1000S.: (45.50...60.50)

4th speed 1/min: 150
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...67.00
1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: K-OT
LDA stroke mm: 5.8
Ya mm: 18.8...22.8
Yb mm: 78.0...92.0

Remarks:

:
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
Edition : 09.03.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F205DR441
Type number : 0 460 494 291
Customer Part-No. :

Customer-specific information
Customer : IVECO-SOFIM

Engine : 8144.97.1400

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: 0.2
(from BDC): +0,02(0,04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 2.40...2.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

B22

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 4.70...5.30
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 65.00...66.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.0
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 41.00...42.00

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Charge press hPa: -
Del. quantity cm3/
1000S.: 10.50...14.50

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 0.00...5.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 35.00...41.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...74.00
mind 1000S.: 50.00

Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1000
 Charge press hPa: 1000
 Inj.-qty. cm³/
 difference 1000S.: - 19.0...21.0 #
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1000
 Charge press hPa: 1000
 Supply pump
 pressure
 difference bar: - 0.10..0.30#
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1800
 Charge press hPa: 1000
 TD travel mm: 8.00...8.80
 mm: (7.70...9.10)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 2.00...2.40
 mm: (1.70...2.70)

Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 2050
 Charge press. hPa: 1000
 TD travel mm: 9.60...10.40
 mm: (9.30...10.70)

Shutoff
 electromagnet Volt: 12
 6th speed 1/min: 1400
 Charge press. hPa: 1000
 TD travel mm: 4.80...5.60
 mm: (4.50...5.90)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 700
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 3.10...3.70
 Shutoff
 electromagnet Volt: 12

2nd speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 4.70...5.30
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2050
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 8.40...9.00
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...83.40
 quantity cm³/10s: (26.70...98.40)
 2nd speed 1/min: 2050
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700*
 Charge-air pressure-setting
 point hPa: 350
 LDA-stroke mm: 4.5
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 53.50...54.50
 1000S.: (51.50...56.50)

2nd speed 1/min: 2750
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

3rd speed 1/min: 2400
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 35.00...41.00
 1000S.: (34.00...42.00)

9th speed 1/min: 2050
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 65.00...67.00
 1000S.: (64.30...68.70)

12th speed 1/min: 1200
 Charge press. hPa: 1000

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 65.00...66.00
1000S.: (63.50...67.50)
18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 41.00...42.00
1000S.: (39.00...44.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.50...14.50
1000S.: (9.50...15.50)

High Idle:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 11.00...15.00
1000S.: (10.00...16.00)

Residual:

1. Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: -

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1000
Charge press. hPa: 1000
Inj.-qty. cm³/ : - 18.0...26.0"
difference 1000S.: -
2nd speed 1/min: 1000
Charge press. hPa: 1000
Inj.-qty. cm³/: MAX.
difference 1000S.: 4.0...6.0

Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1000
Charge press. hPa: 1000
TD-travel : - 0.70...0.90"
difference mm: -

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000
TD-travel : - 1.1...1.9 "
difference mm: -
Shutoff
electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.50...26.50
1000S.: (23.50...28.50)

Automatic starting fuel delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.00...48.00
1000S.: -

2nd speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...74.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...74.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.6...6.0
MS	mm: 1.1...1.5
LDA stroke	mm: 4.5
Ya	mm: 41.3...43.3
Yo	mm: 45.0...50.6

Ajustement Potentiometer:

Angle for pot.	°: LL-ANSCH.
Supply voltage pot.	volt: 5.0
Output volt pot.	volt: 0.5

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : S0F
Edition : 03.03.93
replaces : 15.04.92
Calibrating oil : ISO-4113

Injection pump : VE4/9F2050R442
Type number : 0 460 494 292
Customer Part-No. :

Customer-specific information
Customer : IVECO-SOFIM

Engine : 8144.97.2400 RENAULT

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: 0.2
(from BDC): +0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 2.00...2.40
Shutoff
electromagnet Volt: 12

Supply-pump pressure

B26

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 4.70...5.30
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 65.00...66.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 41.00...42.00

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
1000S.: 10.50...14.50

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2,5
1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 0.50...4.50

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 35.00...41.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...74.00
mind 1000S.: 50.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1000
Charge press hPa: 1000
Inj.-qty. cm3/
difference 1000s.: - 19.0...21.0 #
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1000
Charge press hPa: 1000
Supply pump
pressure
difference bar: - 0.1...0.3 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1800
Charge press hPa: 1000
TD travel mm: 8.00...8.80
mm: (7.70...9.10)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.00...2.40
mm: (1.50...2.90)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 2050
Charge press. hPa: 1000
TD travel mm: 9.60...10.40
mm: (9.30...10.70)

Shutoff
electromagnet Volt: 12
6th speed 1/min: 1400
Charge press. hPa: 1000
TD travel mm: 4.80...5.60
mm: (4.50...5.90)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 700
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.10...3.70
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000

Supply-pump
pressure bar: 4.70...5.30
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2050
Charge press. hPa: 1000
Supply-pump
pressure bar: 8.40...9.00
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm3/10s: (41.70...83.40)
2nd speed 1/min: 2050
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700*
Charge-air pressure-setting
point hPa: 350
LDA-stroke mm: 4.5
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 53.50...54.50
1000s.: (51.50...56.50)

2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
1000s.: (0.00...3.00)

5th speed 1/min: 2400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 35.00...41.00
1000s.: (34.00...42.00)

9th speed 1/min: 2050
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 65.00...68.00
1000s.: (64.30...68.70)

12th speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 65.00...66.00
1000s.: (63.50...67.50)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 41.00...42.00
1000S.: (39.00...44.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.50...14.50
1000S.: (9.50...15.50)

2nd speed 1/min: 475
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.00...8.00
1000S.: -

High Idle:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 11.00...15.00
1000S.: (10.00...16.00)

Residual:

1. Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.50...4.50
1000S.: (0.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1000
Charge press. hPa: 1000
Inj.-qty. cm³/ : -19.0..25.0 "
difference 1000S.: -(18.0..26.0) "
2nd speed 1/min: 1000
Charge press. hPa: 1000

Inj.-qty. cm³/: MAX
difference 1000S.: 2.00...8.00 '
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1000
Charge press. hPa: 1000
TD-travel : - 0.7...0.9 "
difference mm: -
2nd speed 1/min: 1000
Charge press. hPa: 1000
TD-travel : - 1.1...1.9 '
difference mm: -

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1000

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...27.00
1000S.: (23.50...28.50)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...74.00
1000S.: (50.00...74.00)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.00...44.00
1000S.: (36.00...44.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...74.00
1000S.: (50.00...74.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.6...6.0
MS	mm: 1.1...1.5
LDA stroke	mm: 4.5
FH	mm: MIKROSCH.
TLA-E	mm: 10.3
Ya	mm: 41.3...43.3
Yb	mm: 45.0...50.6

Remarks:

:
Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 12.02.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2200L153-2
Type number : 0 460 494 303
Customer Part-No. :

Customer-specific information
Customer : RNUR

Engine : J8S

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400
Charge press. hPa: 800
Setting value mm: 4.00...4.40
Shutoff
electromagnet Volt: 12

Supply-pump pressure

CO2

Speed 1/min: 1400
Charge press hPa: 800
Setting value bar: 5.10...5.70
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1400
Charge press. hPa: 800
Del. quantity cm3/
1000S.: 47.00...48.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 37.00...38.00

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
1000S.: 7.00...11.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400
Charge press hPa: 800
Del. quantity cm3/
1000S.: 23.00...29.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.00...80.00
mind 1000S.: 60.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press hPa: 800
TD travel mm: 1.90...2.70
mm: (1.60...3.00)
electromagnet Volt: 12.0

2nd speed 1/min: 1400
Charge press hPa: 800
TD travel mm: 4.00...4.40
mm: (3.50...4.90)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1800
Charge press hPa: 800
TD travel mm: 5.70...6.50
mm: (5.40...6.80)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 2000
Charge press hPa: 800
TD travel mm: 6.2...7.0
mm: -

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: -
Supply-pump pressure bar: 2.60...3.20

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1400
Charge press. hPa: 800
Supply-pump pressure bar: 5.10...5.70

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 800
Supply-pump pressure bar: 6.90...7.50

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: -
Shutoff
electromagnet Volt: 12.0
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 2000
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 600
Charge-air pressure-setting point hPa: 200
LDA-stroke mm: 4.5

Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 41.00...42.00
(38.50...44.50)

3rd speed 1/min: 2700
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 0.00...3.00
-

4th speed 1/min: 2500
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/1000S.: 2.50...17.50
-

5th speed 1/min: 2400
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/1000S.: 23.00...29.00
(22.00...30.00)

6th speed 1/min: 2000
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/1000S.: 43.40...45.40
(42.10...46.70)

7th speed 1/min: 1400
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/1000S.: 47.00...48.00
(45.20...49.80)

8th speed 1/min: 1000
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 44.90...47.90
(43.40...49.40)

9th speed 1/min: 600
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 37.00...38.00
(34.50...40.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 425

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...11.50
1000S.: (5.00...13.00)
Dispersion cm³/: 2.5
1000S.: (3.0)
2nd speed 1/min: 520

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.00...7.00
1000S.: (1.00...9.00)
3rd speed 1/min: 660

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...40.00
1000S.: -

2nd speed 1/min: 180
Shutoff
electromagnet Volt: 12.0
Del. quantity cm³/: 40.00...100.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.6...6.0
MS mm: 1.3...1.7
SVS max. mm: 3.0
LDA stroke mm: 4.5
Ya mm: 38.8...42.8
Yb mm: 34.1...43.9

Remarks:

⋮

Operate control lever after each manifold-pressure compensator pressure change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 05.03.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2300R433-10
Type number : 0 460 494 306
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1,9 L UD im A3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 000

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 750
Setting value mm: 4.30...4.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

C05

Speed 1/min: 1250
Charge press hPa: 750
Setting value bar: 5.40...6.00
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 750
Del. quantity cm3/
1000S.: 50.00...51.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 450
Del. quantity cm3/
1000S.: 37.2...43.2

Shutoff
electromagnet Volt: 12

Low-idle speed regulation:

Speed 1/min: 450
Del. quantity cm3/
1000S.: 16.0...18.0

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 7.00...8.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Charge press hPa: 750
Del. quantity cm3/
1000S.: 9.00...13.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: -
mind 1000S.: 40.0

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm3/
difference 1000s.: - 4.5...6.5 #
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250
Charge press hPa: -
Supply pump
pressure
difference bar: - 0.10..0.30#
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
Charge press hPa: 750
TD travel mm: 8.00...8.60
mm: (7.50...9.10)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 4.30...4.50
mm: (3.60...5.20)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 750
TD travel mm: 1.50...2.10
mm: (1.00...2.60)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 750
Supply-pump
pressure bar: 4.30...4.90
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump
pressure bar: 5.40...6.00
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2100
Charge press. hPa: 750

006

Supply-pump
pressure bar: 7.40...8.00
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm3/10s: (27.80...97.30)
2nd speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.90
quantity cm3/10s: (41.70...154.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...6.00
1000s.: (0.00...6.00)

5th speed 1/min: 2600
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 9.00...13.00
1000s.: (7.00...15.00)

8th speed 1/min: 2400
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 32.50...42.50
1000s.: (31.50...43.50)

9th speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 42.00...44.00
1000s.: (40.80...45.20)

12th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 50.00...51.00
1000s.: (48.30...52.7)

20th speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 42.80...45.80
1000s.: (42.10...46.50)

21th speed 1/min: 450

Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.20...43.20
1000S.: (34.70...45.70)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (MAX. 5.0)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16.00...18.00
1000S.: (13.00...21.00)

High Idle:

1st speed 1/mi: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16.00...18.00
1000S.: (13.00...21.00)

Residual:

1.Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...8.00
1000S.: (5.50...9.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/: - 7.0...11.0 "
difference 1000S.: - (5.0...13.0)
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³/: MAX.3.0 '
difference 1000S.: -

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
Charge press. hPa: -

C07

TD-travel : - 1.9..2.10 "
difference mm: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
TD-travel : - 2.5..2.90 '
difference mm: -

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Charge press. hPa: -
Supply pump-
pressure : - 1.0..1.40 '
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...55.00
1000S.: (35.00...55.00)

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.00...51.00
1000S.: (31.00...51.00)

3rd speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...43.00
1000S.: (32.50...47.50)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: K-OT
MS mm: 1.1...1.5
Ya mm: 37.6...41.6
Yb mm: 49.9...64.3

Remarks:

:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 05.03.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2300R433-14
Type number : 0 460 494 307
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1,9 l WK UD Golf

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 388 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 380 750 000

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 750
Setting value mm: 4.30...4.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

C08

Speed 1/min: 1250
Charge press hPa: 750
Setting value bar: 5.40...6.00
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 750
Del. quantity cm3/
1000S.: 50.00...51.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 450
Del. quantity cm3/
1000S.: 37.20...43.20

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
1000S.: 16.0...18.0

Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 7.00...8.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Charge press hPa: 750
Del. quantity cm3/
1000S.: 9.00...13.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 40.0

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: 750
Inj.-qty. cm³/
difference 1000S.: - 4.5...6.5 #
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250
Charge press hPa: 750
Supply pump
pressure
difference bar: - 0.1...0.3 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
Charge press hPa: 750
TD travel mm: 8.00...8.60
mm: (7.50...9.10)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 4.30...4.50
mm: (3.60...5.20)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 750
TD travel mm: 1.50...2.10
mm: (1.00...2.60)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 750
Supply-pump
pressure bar: 4.30...4.90
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump
pressure bar: 5.40...6.00
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 2100
Charge press. hPa: 750

Supply-pump
pressure bar: 7.40...8.00
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)
2nd speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.90
quantity cm³/10s: (41.70...154.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

5th speed 1/min: 2600
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...13.00
1000S.: (7.00...15.00)

8th speed 1/min: 2400
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.50...42.50
1000S.: (31.50...43.50)

9th speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.00...44.00
1000S.: (40.80...45.20)

12th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quynntity cm³/: 50.00...51.00
1000S.: (48.30...52.70)

20th speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.80...45.80
1000S.: (42.10...46.50)

21th speed 1/min: 450

Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.20...43.20
1000S.: (34.70...45.70)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (MAX. 5.0)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16.00...18.00
1000S.: (13.00...21.00)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16.00...18.00
1000S.: (13.00...21.00)

Residual:

1.Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...8.00
1000S.: (5.50...9.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/ : - 7.0..11.0 "
difference 1000S.: - (5.0...13.0)
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³/: MAX. 3.00 '
difference 1000S.: -
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:

C10

correttore anticipo iniezione (SV):
1st speed 1/min: 1250
Charge press. hPa: -
TD-travel : - 1.90..2.10"
difference mm: -
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: -
TD-travel : - 2.5..2.9 '
difference mm: - (2.1...3.3) '

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Charge press. hPa: -
Supply pump-
pressure : - 1.00..1.40 '
difference bar: -
Shutoff
electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 27.00...29.00
1000S.: (25.00...31.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...55.00
1000S.: (35.00...55.00)

2nd speed 1/min: 320
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.00...51.00
1000S.: (31.00...51.00)

3rd speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...43.00
1000S.: (32.50...47.50)

Shutoff electromagnet:

Cut-in
min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: K-OT
MS	mm: 1.1...1.5
Ya	mm: 37.6...41.6
Yb	mm: 49.9...62.8

Remarks:

⋮



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 05.03.93
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R472
Type number : 0 460 494 309
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 9 TE-Y CATA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 3.90...4.30
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 5.40...6.00
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 53.50...54.50

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 37.50...38.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 12.0...14.0

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 6.00...7.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 12.00...16.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 150
Del. quantity cm3/: 37.00...67.00
mind 1000S.: 37.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: -
Inj.-qty. cm³/
difference 1000s.: MAX.34.0..36.0#
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1500
Charge press hPa: -
TD-travel
difference mm: MAX.2.5..2.7#
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
mm: (5.80...7.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 3.90...4.30
mm: (3.40...4.80)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 0.80...1.60
mm: (0.50...1.90)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.90...4.50

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.40...6.00

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000

Supply-pump
pressure bar: 6.50...7.10
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750*
Charge-air pressure-setting
point hPa: 350
LDA-stroke mm: 5.9
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 46.00...47.00
1000s.: (43.50...49.50)

2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000s.: (0.00...6.00)

5th speed 1/min: 2575
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...16.00
1000s.: (10.00...18.00)

8th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 33.00...43.00
1000s.: (32.00...44.00)

9th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 49.50...51.50
1000s.: (48.30...52.70)

10th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 51.00...53.00
1000S.: (49.80...54.20)
12th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 53.50...54.50
1000S.: (51.80...56.20)
18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.50...38.50
1000S.: (35.00...41.00)
20th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 46.50...49.50
1000S.: (45.00...51.00)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...14.00
1000S.: (9.00...17.00)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 11.00...13.00
1000S.: (8.00...16.00)

Residual:

C14

1. Rotacao 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...7.00
1000S.: (4.50...8.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
Charge press. hPa: -
Inj.-qty. cm³/ : MAX.
difference 1000S.: 2.00...8.00 "
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1500
Charge press. hPa: -
TD-travel : MAX.
difference mm: 0.70...2.10 "
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: -
TD-travel : 0.00...0.60"
difference mm: ALFB / 12 V

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1500
Charge press. hPa: -
Supply pump-
pressure : - 1.3...1.9 "
difference bar: -
Shutoff
electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 8.5

1st speed 1/min: 600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 27.00...35.0
1000S.: MIKROSCHALTER

Automatic starting fuel delivery:

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 25.00...45.00
1000S.: (25.00...45.00)

3rd speed 1/min: 200

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 50.00...56.00
1000S.: (45.50...60.50)

4th speed 1/min: 150

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 37.00...67.00
1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4

KF mm: K-OT

MS mm: 1.1...1.5

Ya mm: 18.8...22.8

Yb mm: 78.0...92.0

Remarks:

⋮

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU 2.1 F8
Edition : 05.03.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2150R474
Type number : 0 460 494 310
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD11ATE-L BVM

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 2.30...2.70
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.00...5.60
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 61.00...62.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 42.50...43.50

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (2.5)

Low-idle speed regulation

Speed 1/min: 325
Del. quantity cm3/
1000S.: 12.0...14.0

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 2.50...3.50

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2250
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 49.00...55.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 70.00...80.00
mind 1000S.: 70.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 5.50...6.30
mm: (5.20...6.60)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.30...2.70
mm: (1.80...3.20)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 0.90...1.70
mm: (0.60...2.00)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump pressure bar: 4.30...4.90

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump pressure bar: 5.00...5.60

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump pressure bar: 7.10...7.70

Shutoff
electromagnet Volt: 12

Overlow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 2000
Charge press. hPa: -
Shutoff
electromagnet Volt: 12

Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 750*
Charge-air pressure-setting point hPa: 400
LDA-stroke mm: 7.1
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 56.00...57.00
(53.50...59.50)

2nd speed 1/min: 2700
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 5.00...11.00
(4.00...12.00)

3rd speed 1/min: 2400
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 33.50...40.50
(33.00...41.00)

5th speed 1/min: 2250
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 49.00...55.00
(48.00...56.00)

9th speed 1/min: 2000
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 55.00...58.00
(54.20...58.80)

10th speed 1/min: 1000
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 60.50...63.50
(59.50...64.50)

12th speed 1/min: 1250
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 61.00...62.00
(59.20...63.80)

18th speed 1/min: 500
Charge press. hPa: -

Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 42.50...43.50
(40.70...45.30)

20th speed 1/min: 500
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 60.00...63.00
1000S.: (59.00...64.00)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 325
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 325
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...14.00
1000S.: (10.00...16.00)

2nd speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.00...11.00
1000S.: (5.00...11.00)

High Idle:

1st speed 1/mi: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 11.00...13.00
1000S.: (9.00...15.00)

Residual:

1. Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.50...3.50
1000S.: (0.50...5.50)

Part-load del. at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

C18

1st speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.50...16.50
1000S.: (13.00...19.00)

Automatic starting fuel delivery:

2nd speed 1/min: 325
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...44.00
1000S.: (36.50...44.50)

3rd speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 76.00...78.00
1000S.: (74.50...79.50)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 70.00...80.00
1000S.: (68.00...82.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.2...5.6
MS mm: 0.9...1.3
LDA stroke mm: 7.1
ALDA stroke mm: MIKROSCH.
FH mm: 12.0 MM
Ya mm: 34.3...38.3
Yb mm: 73.7...88.3

Remarks:

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

For adjustment of switching point
(EGR valve), include 12.0 mm spacer
at third fuel-delivery stop.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 08.12.92
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE4/9F2250R423-2
Type number : 0 460 494 326

Customer-specific information
Customer : RNJR

Engine : J8S - 604/610 CA

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3.60...4.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000

C20

Setting value bar: 5.10...5.70
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 51.00...52.00

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 750
Del. quantity cm³/
1000S.: 38.50...39.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Charge press hPa: -
Del. quantity cm³/
1000S.: 4.50...8.50

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.5
1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 500
Charge press. hPa: -
Del. quantity cm³/
1000S.: 3.5...7.5

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 7.50...13.50

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm³/: -
mind 1000S.: 50.0

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm³/
difference 1000S.: - 4.50...6.50 #
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250
Charge press hPa: -
Supply pump
pressure
difference bar: - 0.1...0.3 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2125
Charge press hPa: 1000
TD travel mm: 6.80...7.60
mm: (6.50...7.90)
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 3.60...4.00
mm: (3.10...4.50)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.30...3.10
mm: (2.00...3.40)
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2125
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.50...8.10
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.10...5.70
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press. hPa: 1000

Supply-pump
pressure bar: 4.40...5.00
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 41.6...83.3
quantity cm³/10s: (26.6...98.3)
2nd speed 1/min: 2115
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.5...138.2
quantity cm³/10s: (40.5...153.8)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750*
Charge-air pressure-setting
point hPa: 300
LDA-stroke mm: 6.0
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.50...46.50
1000S.: (43.00...49.00)
2nd speed 1/min: 2700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: -
3rd speed 1/min: 2500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.50...13.50
1000S.: (6.50...14.50)
4th speed 1/min: 2350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 28.40...36.40
1000S.: (27.40...37.40)
5th speed 1/min: 2125
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 48.10...50.10
1000S.: (46.80...51.40)
6th speed 1/min: 1625
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 48.90...50.90
 1000S.: (47.60...52.20)
 7th speed 1/min: 1250
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 36.60...39.60
 1000S.: (35.10...41.10)
 8th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 51.00...52.00
 1000S.: (49.20...53.80)
 9th speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 50.60...53.60
 1000S.: (49.10...55.10)
 10th speed 1/min: 750
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 38.50...39.50
 1000S.: (36.00...42.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
 Charge press. hPa: -
 Del. quantity cm³/: 0.00...3.00
 1000S.: -

Shutoff
 electromagnet volt: -

Damper set qty.:

LFG-setting:
 solidale con carcassa:
 Idle delivery:

1st speed 1/min: 425
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 4.50...8.50
 1000S.: (2.50...10.50)

High Idle:

1st speed 1/mi: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.00...10.00
 1000S.: (4.00...12.00)

Residual:

C22

1. Rotacao 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 3.50...7.50
 1000S.: -

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Charge press. hPa: -
 Inj.-qty. cm³/ : - 7.5...11.5'
 difference 1000S.: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: -
 Inj.-qty. cm³/: MAX.
 difference 1000S.: 2.00...8.00 "

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):

1st speed 1/min: 1250
 Charge press. hPa: -
 TD-travel : - 1.2...1.4 '
 difference mm: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: -
 TD-travel : - 1.9...2.7 "
 difference mm: -
 Shutoff
 electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 350
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 20.00...50.00
 1000S.: -

2nd speed 1/min: 250
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 50.00...90.00
 1000S.: -

3rd speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 50.00...90.00
 1000S.: -

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.6...3.8
KF	mm: K-OT
MS	mm: 1.0...1.4
SVS max.	mm: 2.8
LDA stroke	mm: 6.0
ALDA stroke	mm: MIKROSCH.
FH	mm: 6.0 MM
Ya	mm: 38.8...42.8
Yb	mm: 36.2...45.8

* Correction at adjusting nut
marks:

Operate control lever after each
manifold-pressure compensator pressure
change.

Screw out residual-quantity adjusting
screw 1 mm after setting pump.

On initial measurement, screw in
residual-quantity adjusting screw 1 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 08.12.92
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE4/9F2250R423-3
Type number : 0 460 494 327
Customer-specific information
Customer : RNUR
Engine : J8S - 604/610 CA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3.60...4.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250

C24

Charge press hPa: 1000
Setting value bar: 5.10...5.70
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 51.00...52.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 750
Del. quantity cm3/
1000S.: 38.50...39.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Charge press hPa: -
Del. quantity cm3/
1000S.: 4.50...8.50

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 500
Charge press. hPa: -
Del. quantity cm3/
1000S.: 3.5...7.5

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 7.50...13.50

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm3/: -
mind 1000S.: 50.0

Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Charge press hPa: -
 Inj.-qty. cm³/
 difference 1000S.: - 4.50...6.50 #
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1250
 Charge press hPa: -
 Supply pump
 pressure
 difference bar: - 0.1...0.3 #
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2125
 Charge press hPa: 1000
 TD travel mm: 6.80...7.60
 mm: (6.50...7.90)
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press hPa: 1000
 TD travel mm: 3.60...4.00
 mm: (3.10...4.50)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 2.30...3.10
 mm: (2.00...3.40)
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2125
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 7.50...8.10
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 5.10...5.70
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1000

Charge press. hPa: 1000
 Supply-pump
 pressure bar: 4.40...5.00
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.6...83.3
 quantity cm³/10s: (26.6...98.3)
 2nd speed 1/min: 2115
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.5...138.8
 quantity cm³/10s: (40.5...153.8)
 Shutoff
 electromagnet Volt: 12

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750*
 Charge-air pressure-setting
 point hPa: 300
 LDA-stroke mm: 6.0
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 45.50...46.50
 1000S.: (43.00...49.00)
 2nd speed 1/min: 2700
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: -
 3rd speed 1/min: 2500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.50...13.50
 1000S.: (6.50...14.50)
 4th speed 1/min: 2350
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 28.40...36.40
 1000S.: (27.40...37.40)
 5th speed 1/min: 2125
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 48.10...50.10
 1000S.: (46.80...51.40)
 6th speed 1/min: 1625
 Charge press. hPa: 1000

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 48.90...50.90
 1000S.: (47.60...52.20)
 7th speed 1/min: 1250
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 36.60...39.60
 1000S.: (35.10...41.10)
 8th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 51.00...52.00
 1000S.: (49.20...53.80)
 9th speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 50.60...53.60
 1000S.: (49.10...55.10)
 10th speed 1/min: 750
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 38.50...39.50
 1000S.: (36.00...42.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
 Charge press. hPa: -
 Del. quantity cm³/: 0.00...3.00
 1000S.: -

Shutoff
 electromagnet volt: -

Damper set qty.:

LFG-setting:
 solidale con carcassa:
 Idle delivery:

1st speed 1/min: 425
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 4.50...8.50
 1000S.: (2.50...10.50)

High Idle:

1st speed 1/mi: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.00...10.00
 1000S.: (4.00...12.00)

Residual:

1.Rotacao 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 3.50...7.50
 1000S.: -

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Charge press. hPa: -
 Inj.-qty. cm³/: - 7.5...11.5'
 difference 1000S.: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: -
 Inj.-qty. cm³/: MAX.
 difference 1000S.: 2.00...8.00 "

TD-travel dif.measurement:

correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 Charge press. hPa: -
 TD-travel : - 1.2...1.4 '
 difference mm: -

Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: -
 TD-travel : - 1.9...2.7 "
 difference mm: -

Shutoff
 electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 350
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 20.00...50.00
 1000S.: -

2nd speed 1/min: 250
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 50.00...90.00
 1000S.: -

3rd speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 50.00...90.00
 1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: K-OT
MS	mm: 1.0...1.4
SVS max.	mm: 2.8
LDA stroke	mm: 6.0
ALDA stroke	mm: MIKROSCH.
FH	mm: 6,0 MM
Ya	mm: 38.8...42.8
Yb	mm: 36.2...45.8

* Correction at adjusting nut
emarks:

Operate control lever after each
manifold-pressure compensator pressure
change.

Screw out residual-quantity adjusting
screw 1 mm after setting pump.

On initial measurement, screw in
residual-quantity adjusting screw 1 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 08.12.92
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE4/9F2250R484
Type number : 0 460 494 328
Customer-specific information
Customer : RNUR
Engine : J8S - 778 US 87

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3.40...3.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250

C28

Charge press hPa: 1000
Setting value bar: 5.10...5.70
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 51.00...52.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2,5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 750
Del. quantity cm3/
1000S.: 38.50...39.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Charge press hPa: -
Del. quantity cm3/
1000S.: 4.50...8.50

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 500
Charge press. hPa: -
Del. quantity cm3/
1000S.: 3.5...7.5

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 7.50...13.50

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm3/: -
mind 1000S.: 50.0

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm³/
difference 1000S.: - 4.50...6.50 #
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250
Charge press hPa: -
Supply pump
pressure
difference bar: - 0.1...0.3 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2125
Charge press hPa: 1000
TD travel mm: 6.90...7.70
(6.70...7.90)
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 3.40...3.80
(3.10...4.10)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.10...2.90
(1.90...3.10)
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2125
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.50...8.10
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.10...5.70
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000

Charge press. hPa: 1000
Supply-pump
pressure bar: 4.40...5.00
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 41.6...83.3
quantity cm³/10s: (26.6...98.3)
2nd speed 1/min: 2115
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.5...138.8
quantity cm³/10s: (40.5...153.8)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750*
Charge-air pressure-setting
point hPa: 300
LDA-stroke mm: 6.0
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.50...46.50
1000S.: (43.00...49.00)
2nd speed 1/min: 2700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: -
3rd speed 1/min: 2500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.50...13.50
1000S.: (6.50...14.50)
4th speed 1/min: 2350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 28.40...36.40
1000S.: (27.40...37.40)
5th speed 1/min: 2125
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 48.10...50.10
1000S.: (46.80...51.40)
6th speed 1/min: 1625
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 48.90...50.90
1000S.: (47.60...52.20)
7th speed 1/min: 1250
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.60...39.60
1000S.: (35.10...41.10)
8th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 51.00...52.00
1000S.: (49.20...53.80)
9th speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.60...53.60
1000S.: (49.10...55.10)
10th speed 1/min: 750
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 38.50...39.50
1000S.: (36.00...42.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: -

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 4.50...8.50
1000S.: (2.50...10.50)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...10.00
1000S.: (4.00...12.00)

Residual:

D02

1.Rotacao 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.50...7.50
1000S.: -

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/: - 6.5...12.5'
difference 1000S.: -(5.5...13.5)
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/: MAX.
difference 1000S.: 2.00...8.00 "

TD-travel dif.measurement:
correttore anticipo iniezione (SV):

1st speed 1/min: 1250
Charge press. hPa: -
TD-travel : - 1.2...1.4 '
difference mm: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: -
TD-travel : - 1.9...2.7 "
difference mm: -
Shutoff
electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 825
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.50...26.50
1000S.: (23.50...28.50)

Automatic starting fuel delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...50.00
1000S.: -

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 50.00...90.00
1000S.: -

3rd speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 50.00...90.00
1000S.: -

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: K-OT

MS mm: 1.0...1.4

SVS max. mm: 1.4

LDA stroke mm: 6.0

ALDA stroke mm: MIKROSCH.

FH mm: 6.0 MM

Ya mm: 38.8...42.8

Yb mm: 36.2...45.8

* Correction at adjusting nut

Operate control lever after each manifold-pressure compensator pressure change.

Screw out residual-quantity adjusting screw 1 mm after setting pump.

On initial measurement, screw in residual-quantity adjusting screw 1 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 08.12.92
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE4/9F2250R484-1
Type number : 0 460 494 329

Customer-specific information
Customer : RNJR

Engine : J8S - 778 US 87

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3.40...3.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250

D04

Charge press hPa: 1000
Setting value bar: 5.10...5.70
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 51.00...52.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 750
Del. quantity cm3/
1000S.: 38.50...39.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Charge press hPa: -
Del. quantity cm3/
1000S.: 4.50...8.50

Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 500
Charge press. hPa: -
Del. quantity cm3/
1000S.: 3.5...7.5

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 7.50...13.50

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm3/
mind 1000S.: 50.0

Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Charge press hPa: -
 Inj.-qty. cm³/
 difference 1000S.: - 4.50...6.50 #
 Shutoff
 electromagnet Volt: 12
 SP press.-dif.measurement
 pompa di mandata (FP)
 1.Speed 1/min: 1250
 Charge press hPa: -
 Supply pump
 pressure
 difference bar: - 0.1...0.3 #
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 2125
 Charge press hPa: 1000
 TD travel mm: 6.90...7.70
 mm: (6.70...7.90)
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press hPa: 1000
 TD travel mm: 3.40...3.80
 mm: (3.10...4.10)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 2.10...2.90
 mm: (1.90...3.10)
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2125
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 7.50...8.10
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 5.10...5.70
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1000

Charge press. hPa: 1000
 Supply-pump
 pressure bar: 4.40...5.00
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.6...83.3
 quantity cm³/10s: (26.6...98.3)
 2nd speed 1/min: 2115
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.5...138.8
 quantity cm³/10s: (40.5...153.8)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750*
 Charge-air pressure-setting
 point hPa: 300
 LDA-stroke mm: 6.0
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 45.50...46.50
 1000S.: (43.00...49.00)
 2nd speed 1/min: 2700
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: -
 3rd speed 1/min: 2500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 7.50...13.50
 1000S.: (6.50...14.50)
 4th speed 1/min: 2350
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 28.40...36.40
 1000S.: (27.40...37.40)
 5th speed 1/min: 2125
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 48.10...50.10
 1000S.: (46.80...51.40)
 6th speed 1/min: 1625
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 48.90...50.90
1000S.: (47.60...52.20)
7th speed 1/min: 1250
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.60...39.60
1000S.: (35.10...41.10)
8th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 51.00...52.00
1000S.: (49.20...53.80)
9th speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.60...53.60
1000S.: (49.10...55.10)
10th speed 1/min: 750
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 38.50...39.50
1000S.: (36.00...42.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: -

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 4.50...8.50
1000S.: (2.50...10.50)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...10.00
1000S.: (4.00...12.00)

Residual:

D06

1.Rotacao 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.50...7.50
1000S.: -

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/: - 5.5...13.5'
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/: MAX.2.0..8.0"
difference 1000S.: -

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
Charge press. hPa: -
TD-travel : - 1.2...1.4 '
difference mm: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: -
TD-travel : - 1.9...2.7 "
difference mm: -
Shutoff
electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 825
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.50...26.50
1000S.: (23.50...28.50)

Automatic starting fuel delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...50.00
1000S.: -

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 50.00...90.00
1000S.: -

3rd speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 50.00...90.00
1000S.: -

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: K-OT

MS mm: 1.0...1.4

SVS max. mm: 1.4

LDA stroke mm: 6.0

ALDA stroke mm: MIKROSCH.

FH mm: 6.0 MM

Ya mm: 38.8...42.8

Yb mm: 36.2...45.8

* Connection at adjusting nut

Operate control lever after each manifold-pressure compensator pressure change.

Screw out residual-quantity adjusting screw 1 mm after setting pump.

On initial measurement, screw in residual-quantity adjusting screw 1 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 05.03.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2400R486
Type number : 0 460 494 332
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : G8T - 706

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.30...3.70
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.90...6.50
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 38.00...39.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 385
Del. quantity cm3/
1000S.: 10.0...14.0

Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 450
Del. quantity cm3/
1000S.: 1.00...5.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Del. quantity cm3/
1000S.: 20.00...26.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 45.00...75.00
mind 1000S.: 45.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference 1000S.: -- 6.10..8.10 #

Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250

Supply pump
pressure
difference bar: - 0.1...0.3 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 7.20...8.00
mm: (7.00...8.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 3.30...3.70
mm: (3.00...4.00)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
TD travel mm: 1.60...2.40
mm: (1.40...2.60)

Shutoff
electromagnet Volt: 12
9th speed 1/min: 750
TD travel mm: 1.00...3.40
mm: (1.00...3.40)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Supply-pump
pressure bar: 4.40...5.00

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 5.90...6.50

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Supply-pump
pressure bar: 7.90...8.50

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 2300

D09

Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: (0.00...5.00)

5th speed 1/min: 2600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...26.00
1000S.: (19.00...27.00)

8th speed 1/min: 2500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...38.00
1000S.: (29.00...39.00)

9th speed 1/min: 2300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 41.00...43.00
1000S.: (39.70...44.30)

10th speed 1/min: 2000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 41.50...43.50
1000S.: (40.20...44.80)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 38.00...39.00
1000S.: (36.20...40.80)

15th speed 1/min: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...40.00
1000S.: (36.20...40.80)

20th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.10...39.10
1000S.: (35.30...39.90)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 385
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 385
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (8.00...16.00)

High Idle:

1st speed 1/mi: 435
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.50...10.50
1000S.: (4.50...12.50)

Residual:

1.Rotacao 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 1.00...5.00
1000S.: (1.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : - 7.4...11.4 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³/: MAX.
difference 1000S.: 2.00...8.00
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : - 0.70..0.90"
difference mm: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
TD-travel : - 1.0...1.4 '
difference mm: -

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1250

D10

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 22.50...23.50
1000S.: (20.50...25.50)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...95.00
1000S.: (45.00...95.00)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000S.: (45.00...75.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: K-OT
MS mm: 0.6...1.0
ALDA stroke mm: MIKROSCH.
FH mm: 13.6 MM
Ya mm: 27.8...31.8
Yb mm: 52.1...61.9

Remarks:

:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 05.03.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2400R486-1
Type number : 0 460 494 333
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : G8T - 706 CA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.30...3.70
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.90...6.50
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 38.00...39.00
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 385
Del. quantity cm3/
1000S.: 10.0...14.0
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 450
Del. quantity cm3/
1000S.: 1.00...5.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Del. quantity cm3/
1000S.: 20.00...26.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 45.00...75.00
mind 1000S.: 45.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference 1000S.: -- 6.1...8.1 #
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250

Supply pump
pressure
difference bar: - 0.1...0.3 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 7.20...8.00
mm: (7.00...8.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 3.30...3.70
mm: (3.00...4.00)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
TD travel mm: 1.60...2.40
mm: (1.40...2.60)

Shutoff
electromagnet Volt: 12
9th speed 1/min: 750
TD travel mm: 1.00...3.40
mm: (1.00...3.40)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Supply-pump
pressure bar: 4.40...5.00
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 5.90...6.50
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 2000
Supply-pump
pressure bar: 7.90...8.50
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 2300

D12

Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: (0.00...5.00)

5th speed 1/min: 2600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...26.00
1000S.: (19.00...27.00)

8th speed 1/min: 2500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...38.00
1000S.: (29.00...39.00)

9th speed 1/min: 2300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 41.00...43.00
1000S.: (39.70...44.30)

10th speed 1/min: 2000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 41.50...43.50
1000S.: (40.20...44.80)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 38.00...39.00
1000S.: (36.20...40.80)

15th speed 1/min: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...40.00
1000S.: (36.20...40.80)

20th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.10...39.10
1000S.: (35.30...39.90)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 385
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet Volt: -

Damper set qty.:

LFG-setting:

solidale con carcassa:
Idle delivery:

1st speed 1/min: 385
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (8.00...16.00)

High Idle:

1st speed 1/mi: 435
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.50...10.50
1000S.: (4.50...12.50)

Residual:

1.Rotacao 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 1.00...5.00
1000S.: (1.00...5.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : - 7.4..11.4 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³/: MAX.
difference 1000S.: 2,00...8.00 '
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):

1st speed 1/min: 1250
TD-travel : - 0.70..0.90"
difference mm: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
TD-travel : - 1.0...1.4 '
difference mm: -
Shutoff
electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 22.50...23.50
1000S.: (20.50...25.50)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...95.00
1000S.: (45.00...95.00)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000S.: (45.00...75.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: K-OT
MS mm: 0.6...1.0
ALDA stroke mm: MIKROSCH.
FH mm: 13.6 MM
Ya mm: 27.8...31.8
Yb mm: 52.1...61.9

Remarks:
:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 05.03.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2200R420-2
Type number : 0 460 494 336
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 028.D-1.9l. UD

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 000

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.70...4.10
Shutoff
electromagnet Volt: 12

Supply-pump pressure

D14

Speed 1/min: 1250
Setting value bar: 5.50...6.10
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm³/
1000S.: 42.00...43.00

Shutoff
electromagnet Volt: 12
Dispersion cm³/
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm³/
1000S.: 9.00...11.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 575
Del. quantity cm³/
1000S.: 5.50...6.50

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525
Del. quantity cm³/
1000S.: 10.00...14.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/
mind 1000S.: 35.00...65.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm³/
difference 1000S.: - 5.00...7.00 #
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1250

Supply pump
pressure
difference bar: - 0.1...0.3 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 6.60...7.40
mm: (6.30...7.70)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 3.70...4.10
mm: (3.20...4.60)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 1.60...2.40
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 4.30...4.90
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 5.50...6.10
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 2200
Supply-pump
pressure bar: 7.70...8.30
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)
2nd speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.90
quantity cm³/10s: (41.70...154.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000s.: (0.00...6.00)

5th speed 1/min: 2525
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000s.: (8.00...16.00)

8th speed 1/min: 2425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 19.00...29.00
1000s.: (18.00...30.00)

9th speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.70...38.70
1000s.: (35.50...39.90)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.00...43.00
1000s.: (40.30...44.70)

20th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 33.70...36.70
1000s.: (32.20...38.20)

21th speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.50...41.50
1000s.: (33.00...44.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...11.00
1000s.: (6.00...14.00)

High Idle:

1st speed 1/mi: 525
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...11.00
1000S.: (6.00...14.00)

Residual:

1. Rotacao 1/min: 575
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.50...6.50
1000S.: (4.00...8.00)
2nd speed 1/min: 525
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.30...9.30
1000S.: (5.80...10.80)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : - 4.0...10.0"
difference 1000S.: - (3.0...11.0)
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³/ : MAX.
difference 1000S.: 0.00...3.00"
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : - 0.6...0.8 "
difference mm: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
TD-travel : - 1.8...2.2 "
difference mm: -

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : - 1.1...1.50
difference bar: -
Shutoff
electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

D16

1st speed 1/min: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 27.00...29.00
1000S.: (25.00...31.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...75.00
1000S.: (35.00...75.00)

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...50.00
1000S.: (30.00...50.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...65.00
1000S.: (35.00...65.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.1...5.5
MS mm: 1.1...1.5
Ya mm: 37.6...41.6
Yb mm: 50.4...62.3

Remarks:

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 26.02.93
 Replaces : 01.93
 Test oil : ISO-4113
 Combination no. : 0 400 866 179
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV550...1100AOC2238
 -2R
 Governor no. : 0 420 233 296

Customer-spec. information
 Customer : C.D.C.

Engine : 6CTA-830

1st version kW : 157.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

D17

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 12.70...12.80
 Del.quantity cm³/ : 12.3...12.5
 100 s : (12.1...12.7)
 Spread cm³ : 0.4
 100 s : (0.6)

2nd speed rpm : 550.0
 Rack travel in mm : 5.6...5.8
 Del.quantity cm³/ : 1.6...2.0
 100 s : (1.3...2.2)
 Spread cm³ : 0.6
 100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 900
 Del.quantity : 123.0...125.0
 1000 : (121.0...127.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 43...51

Testing:

1st rack travel in: 11.70
Speed rpm : 1165...1175
2nd rack travel in: 4.00
Speed rpm : 1225...1235
3rd rack travel in: 4.00
Speed rpm : 1225...1255
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 25...33
Setting point w/out bumper spring
Speed rpm : 550
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 550
Rack travel in mm : 5.60...5.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.70...12.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.80...11.00
2nd pressure hPa : 340
Rack travel in m: 11.20...11.30
3rd pressure hPa : 465
Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 82.5...84.5
1000 s: (80.5...85.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1165...1175

D18

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 550
Rack travel in mm : 5.60...5.80
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3923479

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 w 1
 Edition : 26.02.93
 Replaces : 02.9i
 Test oil : ISO-4113
 Combination no. : 0 400 876 350
 Injection pump
 Pump designation : PES6A100D410RS2754
 EP type number : 0 410 806 002
 Governor
 Governor design. : RSV425...1100A2C2234
 L
 Governor no. : 0 420 232 498

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076TRW04

1st version kw : 122.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

D19

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.60...10.70

Del. quantity cm³/ : 10.0...10.2

100 s : (9.6...10.2)

Spread cm³ : 0.4

100 s : (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.8...6.0

Del. quantity cm³/ : 2.6...3.0

100 s : (2.4...3.2)

Spread cm³ : 0.6

100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 100.5...102.5

1000 : (96.5...102.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 9.60
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.60...10.70
2nd speed rpm : 700
Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm3/ : 125.0...128.0
1000 s: (122.5...130.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 26.0...30.0
1000 s: (24.0...32.0)

Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE29182
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 w 2
 Edition : 26.02.93
 Replaces : 02.91
 Test oil : ISO-4113
 Combination no. : 0 400 876 351
 Injection pump
 Pump designation : PES6A100D41ORS2754
 EP type number : 0 410 806 002
 Governor
 Governor design. : RSV425...1100A2C2234
 -1L
 Governor no. : 0 42C 232 499

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076 TRW01

1st version kW : 106.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

D21

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 9.70...9.80
 Del.quantity cm3/ : 8.9...9.1
 100 s: (8.5...9.1)
 Spread cm3 : 0.4
 100 s: (0.6)

2nd speed rpm : 425.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm3/ : 2.6...3.0
 100 s: (2.4...3.2)
 Spread cm3 : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 89.0...91.0
 1000 : (85.0...91.0)
 Spread cm3 : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 42...50

Testing:

1st rack travel in: 8.70
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.90...6.10

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.70...9.80
2nd speed rpm : 700
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del. quantity cm³/ : 110.5...113.5
1000 s: (108.0...116.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.90...6.10
Del. quantity cm³/ : 26.0...30.0
1000 s: (24.0...32.0)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE29303
Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 w 4
 Edition : 26.02.93
 Replaces : 02.91
 Test oil : ISO-4113
 Combination no. : 0 400 876 354
 Injection pump
 Pump designation : PES6A100D41ORS2754
 EP type number : 0 410 806 002
 Governor
 Governor design. : RSV425...1100A2C2235
 L
 Governor no. : 0 420 232 511

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076TRW06

1st version kW : 98.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

D23

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 9.00...9.10
 Del. quantity cm³/ : 8.3...8.5
 100 s: (7.9...8.5)
 Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 425.0
 Rack travel in mm : 5.7...5.9
 Del. quantity cm³/ : 2.6...3.0
 100 s: (2.4...3.2)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 83.5...85.5
 1000 : (79.5...85.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 41...49

Testing:
 1st rack travel in: 8.00
 Speed rpm : 1145...1155
 2nd rack travel in: 4.00

Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.00...9.10
2nd speed rpm : 650
Rack travel in m: 9.50...9.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del. quantity cm³/ : 103.0...106.0
1000 s: (100.5...108.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.00
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.70...5.90
Del. quantity cm³/ : 26.0...30.0
1000 s: (24.0...32.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

D24

: JOHN DEERE # RE36069

Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Starting/full-load transition speed
from holding magnet = 450 1/min.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 26.02.93
 Replaces : 05.92
 Test oil : ISO-4113

Combination no. : 0 400 876 381

Injection pump
 Pump designation : PES6A100D410RS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV425...1050AOC2252
 -1L
 Governor no. : 0 420 232 571

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076TRW-30

1st version kW : 131.5
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

D25

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.30...11.40

Del. quantity cm³/ : 10.9...11.1

100 s : (10.5...11.1)

Spread cm³ : 0.4

100 s : (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.5...5.7

Del. quantity cm³/ : 2.1...2.5

100 s : (1.9...2.7)

Spread cm³ : 0.6

100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del. quantity : 109.0...111.0

1000 : (105.0...111.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 10.30
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1165...1175
3rd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.50...5.70

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.30...11.40
2nd speed rpm : 750
Rack travel in m: 13.10...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 134.5...138.5
1000 s: (132.5...140.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.50...5.70
Del. quantity cm³/ : 21.5...25.5
1000 s: (19.5...27.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE41833
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,7 d 7
 Edition : 26.02.93
 Replaces : 03.92
 Test oil : ISO-4113

Combination no. : 0 400 876 391

Injection pump
 Pump designation : PES6A100D410RS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV425...1100A2C2225
 -5L

Governer no. : 0 420 232 566

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076ARW-09

1st version kw : 145.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

D27

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.90...12.00

Del. quantity cm³/ : 11.4...11.6

100 s: (11.0...11.6)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 425.0
 Rack travel in mm : 5.7...5.9
 Del. quantity cm³/ : 2.6...3.0

100 s: (2.4...3.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del. quantity : 114.0...116.0

1000 : (110.0...116.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 10.90
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1205...1215
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.90...12.00
2nd speed rpm : 750
Rack travel in m: 13.90...14.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.70...11.90
2nd pressure hPa : 535
Rack travel in m: 12.30...12.40
3rd pressure hPa : 720
Rack travel in m: 13.40...13.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm³/ : 143.5...147.5
1000 s: (141.5...149.5)
Aneroid pressure h: -
Speed rpm : 500

D28

Del.quantity cm³/ : 129.0...133.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 26.0...30.0
1000 s: (24.0...32.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE47502

Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Starting/full-load transition speed
from holding magnet = 450 1/min.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 w 6
 Edition : 26.02.93
 Replaces : 05.92
 Test oil : ISO-4113

Combination no. : 0 400 876 394

Injection pump
 Pump designation : PES6A100D410RS2754
 EP type number : 0 410 806 002
 Governor
 Governor design. : RSV425...1100ACC2234
 -2L

Governer no. : 0 420 232 569

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076TRW04

1st version kW : 122.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

E01

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.60...10.70

Del.quantity cm³/ : 10.0...10.2

100 s : (9.6...10.2)

Spread cm³ : 0.4

100 s : (0.6)

2nd speed rpm : 425.0
 Rack travel in mm : 5.5...5.7
 Del.quantity cm³/ : 2.6...3.0

100 s : (2.4...3.2)

Spread cm³ : 0.6

100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 100.5...102.5

1000 : (96.5...102.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 41...49

Testing:

1st rack travel in: 9.60
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.1

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.50...5.70

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.60...10.70
2nd speed rpm : 700
Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del.quantity cm3/ : 125.0...128.0
1000 s: (122.5...130.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.60
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.50...5.70
Del.quantity cm3/ : 26.0...30.0
1000 s: (24.0...32.0)

Spread cm3 : 6.00
1000 s: (8.00)

Remarks:
: JOHN DEERE # RE51026
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC
 Edition : 08.03.93
 Replaces : 09.92
 Test oil : ISO-4113

Combination no. : 0 400 876 396

Injection pump
 Pump designation : PES6A95D32ORS2779
 EP type number : 0 410 896 903
 Governor
 Governor design. : RSV350...1250A5C2258
 R
 Governor no. : 0 420 233 292

Customer-spec. information
 Customer : NAVISTAR

Engine : DT 466

1st version kW : 142.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 110

Opening
 pressure, bar : 250...253

Orifice plate
 diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

E03

Prestroke mm : 2.45...2.55
 : (2.40...2.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.40...13.50

Del.quantity cm³/ : 9.7...9.9

100 s: (9.5...10.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 5.6...5.8
 Del.quantity cm³/ : 1.1...1.5
 100 s: (0.9...1.8)

Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 900

Del.quantity : 97.0...99.0

1000 : (95.0...101.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 54...62

Testing:

1st rack travel in: 12.40
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1355...1365
3rd rack travel in: 4.00
Speed rpm : 1360...1370
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.60...5.80

CONSTANT REGULATION

Speed rpm : 350...500

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.40...13.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.40...9.60
2nd pressure hPa : 250
Rack travel in m: 10.50...10.60
3rd pressure hPa : 465
Rack travel in m: 12.10...12.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 66.0...70.0
1000 s: (64.0...72.0)

BREAKAWAY

1st version

EO4

1mm rack travel less than

full load rack tr: 12.40
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.60...5.80
Del.quantity cm3/ : 11.5...15.5
1000 s: (9.0...18.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: NAVISTAR #1818556C91
Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 26.02.93
 Replaces : 07.92
 Test oil : ISO-4113

Combination no. : 0 400 876 398

Injection pump
 Pump designation : PES6A100D410RS2754
 EP type number : 0 410 806 002
 Governor
 Governor design. : RSV425...1100A0c2235
 -2L
 Governor no. : 0 420 232 576

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076TRW06

1st version kW : 98.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

E05

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.00...9.10

Del. quantity cm³/ : 8.3...8.5

100 s : (7.9...8.5)

Spread cm³ : 0.4

100 s : (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.5...5.7

Del. quantity cm³/ : 2.6...3.0

100 s : (2.3...3.2)

Spread cm³ : 0.6

100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 83.5...85.5

1000 : (79.5...85.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 8.00
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.1

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.50...5.70

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.00...9.10
2nd speed rpm : 650
Rack travel in m: 9.80...10.00

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 650
Del.quantity cm³/ : 103.0...107.0
1000 s: (101.0...109.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.00
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 26.0...30.0
1000 s: (23.5...32.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE51909
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 26.02.93
 Replaces : 07.92
 Test oil : ISO-4113
 Combination no. : 0 400 876 399
 Injection pump
 Pump designation : PES6A100D41ORS2754
 EP type number : 0 410 806 002
 Governor
 Governor design. : RSV425...1100AOC2234
 -3L
 Governor no. : 0 420 232 577

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076TRW01

1st version kW : 106.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

E07

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 9.70...9.80
 Del. quantity cm³/ : 8.9...9.1
 100 s : (8.5...9.1)
 Spread cm³ : 0.4
 100 s : (0.6)

2nd speed rpm : 425.0
 Rack travel in mm : 5.7...5.9
 Del. quantity cm³/ : 2.6...3.0
 100 s : (2.3...3.2)
 Spread cm³ : 0.6
 100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 89.0...91.0
 1000 : (85.0...91.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 44...52

Testing:

1st rack travel in: 8.70
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.70...9.80
2nd speed rpm : 700
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 110.5...114.5
1000 s: (108.5...116.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 26.0...30.0
1000 s: (23.5...32.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE51910
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 26.02.93
 Replaces : 07.92
 Test oil : ISO-4113

Combination no. : 0 400 876 400

Injection pump
 Pump designation : PES6A100D410RS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV425...1100AOC2225
 -6L
 Governor no. : 0 420 232 578

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076ARW-09

1st version kW : 145.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness : 6.00X2.00X600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

EO9

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.90...12.00

Del. quantity cm3/ : 11.4...11.6

100 s: (11.0...11.6)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 425.0

Rack travel in mm : 5.8...6.0

Del. quantity cm3/ : 2.6...3.0

100 s: (2.3...3.2)

Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del. quantity : 114.0...116.0

1000 : (110.0...116.0)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 10.90
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1205...1215
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.90...12.00
2nd speed rpm : 750
Rack travel in m: 13.90...14.10

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.80...12.00
2nd pressure hPa : 500
Rack travel in m: 12.40...12.50
3rd pressure hPa : 665
Rack travel in m: 13.30...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm3/ : 143.5...147.5
1000 s: (141.5...149.5)
Aneroid pressure h: -
Speed rpm : 500

E10

Del.quantity cm3/ : 129.0...133.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 26.0...30.0
1000 s: (23.5...32.5)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE51911

Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 26.02.93
 Replaces : 07.92
 Test oil : ISO-4113

Combination no. : 0 400 876 401

Injection pump
 Pump designation : PES6A100D410RS2752
 EP type number : 0 410 806 003
 Governor
 Governor design. : RSV400...1100AOC2204
 -9L
 Governor no. : 0 420 232 579

Customer spec. information
 Customer : JOHN DEERE

Engine : 6076TT

1st version kW : 124.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

E11

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.20...11.30

Del. quantity cm³/ : 10.4...10.6
 100 s: (10.0...10.6)

Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 6.1...6.3
 Del. quantity cm³/ : 3.1...3.5
 100 s: (2.8...3.7)

Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 104.0...106.0
 1000 : (100.0...106.0)

Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 47...55

Testing:

1st rack travel in: 10.20
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1205...1215
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 6.10...6.30

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.20...11.30
2nd speed rpm : 700
Rack travel in m: 12.50...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del. quantity cm³/ : 127.5...131.5
1000 s: (125.5...133.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.10...6.30
Del. quantity cm³/ : 31.0...35.0
1000 s: (28.5...37.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE51912
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 26.02.93
 Replaces : 01.93
 Test oil : ISO-4113
 Combination no. : 0 400 876 412
 Injection pump
 Pump designation : PES6A100D410RS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV450...1100AOC2252
 -3L
 Governor no. : 0 420 232 592

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076TDW 30

1st version kW : 120.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

E13

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.90...11.00

Del. quantity cm³/ : 10.1...10.3

100 s: (9.7...10.3)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 450.0
 Rack travel in mm : 5.2...5.4
 Del. quantity cm³/ : 1.9...2.3
 100 s: (1.6...2.5)

Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 101.0...103.0
 1000 : (97.0...103.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 42...50

Testing:

1st rack travel in: 9.90
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.20...5.40

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.90...11.00
2nd speed rpm : 500
Rack travel in m: 12.30...12.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm³/ : 136.5...140.5
1000 s: (134.5...142.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE54248
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 26.02.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 415
 Injection pump
 Pump designation : PES6A95D410RS2839
 EP type number : 0 410 896 894
 Governor
 Governor design. : RSV325...1250A5C1164
 L
 Govenner no. : 0 420 232 593

Customer-spec. information
 Customer : KHD

Engine : BF6L913C

1st version kw : 164.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.60...2.70
 : (2.55...2.75)

E15

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250
 Rack travel in mm : 12.50...12.60
 Del.quantity cm3/ : 11.6...11.8
 100 s : (11.4...12.0)
 Spread cm3 : 0.3
 100 s : (0.6)

2nd speed rpm : 325.0
 Rack travel in mm : 6.4...6.6
 Del.quantity cm3/ : 1.0...1.6
 100 s : (0.7...1.8)
 Spread cm3 : 0.3
 100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 1200
 Del.quantity : 116.0...118.0
 1000 : (114.0...120.0)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 92...100

Testing:
 1st rack travel in: 11.50
 Speed rpm : 1290...1300
 2nd rack travel in: 4.00
 Speed rpm : 1315...1345

3rd rack travel in: 4.00
Speed rpm : 1365...1395
4th rack travel in: 1540
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 63...71
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 350
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 575...635

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 12.50...12.60
2nd speed rpm : 500
Rack travel in m: 12.50...12.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.50...12.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.40...10.50
2nd pressure hPa : 450
Rack travel in m: 11.70...11.80
3rd pressure hPa : 300
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1150
Del. quantity cm³/ : 116.5...119.5
1000 s: (114.0...122.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 17.10...17.30

Remarks:

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 26.02.93
 Replaces : —
 Test oil : ISO-4113
 Combination no. : 0 400 876 416
 Injection pump
 Pump designation : PES6A100D410RS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV400...1100A2C2229
 -1L
 Governor no. : 0 420 232 594

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076 TF 030

1st version kW : 142.0
 2nd version kW : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

E17

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 12.00...12.10
 Del. quantity cm³/ : 12.0...12.2
 100 s: (11.8...12.4)
 Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.0...5.2
 Del. quantity cm³/ : 1.9...2.3
 100 s: (1.6...2.5)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 120.0...122.0
 1000 : (118.0...124.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 40...48

Testing:

1st rack travel in: 11.00
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1205...1215
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 16...24
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.6

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.00...5.20
Rack travel in mm : 2.00
Speed rpm : 550...610

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.00...12.10
2nd speed rpm : 700
Rack travel in m: 13.90...14.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del. quantity cm³/ : 151.0...154.0
1000 s: (148.5...156.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.00...5.20
Del. quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE48640
Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 08.03.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 876 417
 Injection pump
 Pump designation : PES6A100D41ORS2762-1
 EP type number : 0 410 806 008
 Governor
 Governor design. : RSV425...1100AOC2252
 -4L
 Governor no. : 0 420 232 595

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6076ARW-32

1st version kW : 145.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 11.90...12.00
 Del.quantity cm³/ : 11.4...11.6
 100 s: (11.0...11.6)
 Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 425.0
 Rack travel in mm : 5.8...6.0
 Del.quantity cm³/ : 2.6...3.0
 100 s: (2.3...3.2)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 114.0...116.0
 1000 : (110.0...116.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 43...51

Testing:

1st rack travel in: 10.90
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1205...1215
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.90...12.00
2nd speed rpm : 750
Rack travel in m: 13.90...14.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 143.5...147.5
1000 s: (141.5...149.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...120.0
1000 s: (95.0...125.0)

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 26.0...30.0
1000 s: (23.5...32.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE55711
Start-of-delivery mark = 13,5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 26.02.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 840 772
 Injection pump
 Pump designation : PE12P110A920LS3310
 EP type number : 0 411 810 714
 Governor
 Governor design. : RQV300...1150PA1047
 Governor no. : 0 421 814 030

Customer-spec. information
 Customer : KHD

Engine : F 12L513

1st version kW : 282.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.10...3.20
 : (3.05...3.25)
 Rack travel in mm : 9.00...12.00

E21

Firing order : 1- 4- 9- 8- 5- 2-
 11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-
 180-195-240-255-300-
 315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 9.70...9.80

Del. quantity cm³/ : 10.8...11.0

100 s: (10.5...11.3)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 5.0...5.4

Del. quantity cm³/ : 1.5...2.1

100 s: (1.3...2.3)

Spread cm³ : 0.4

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 280
 travel mm : 1.40...1.90

2nd speed rpm : 330
 travel mm : 2.20...2.70

3rd speed rpm : 500
 travel mm : 3.70...4.20

4th speed rpm : 870
 travel mm : 7.40...7.90

5th speed rpm : 1210
 travel mm : 10.00...10.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 7.40...10.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del. quantity : 108.0...110.0

1000 : (105.0...113.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 104...112

Testing:
1st rack travel in: 8.70
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1260...1290
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 71...79

Testing:
Speed rpm : 200
Minimum rack travel: 8.20
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 300...380

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 700
Del. quantity cm³/ : 95.0...99.0
1000 s: (92.0...102.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.70
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...165.0
1000 s: (131.0...169.0)

Remarks:

:

E22

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 9,0 j
 Edition : 26.02.93
 Replaces : 12.92
 Test oil : ISO-4113
 Combination no. : 0 401 846 849
 Injection pump
 Pump designation : PE6P120A32ORS3196
 EP type number : 0 411 826 763
 Governor
 Governor design. : RQV200...1100PA729-1
 Governor no. : 0 421 813 470

Customer-spec. information
 Customer : SAAB-SCANIA

Engine : DS9 06

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00

E23

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 10.40...10.50
 Del.quantity cm³/ : 13.3...13.5
 100 s: (13.0...13.8)
 Spread cm³ : 0.5
 100 s: (0.8)
 2nd speed rpm : 225.0
 Rack travel in mm : 4.9...5.3
 Del.quantity cm³/ : 2.2...2.6
 100 s: (-)
 Spread cm³ : 0.3
 100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
 travel mm : 0.50...0.90
 2nd speed rpm : 350
 travel mm : 2.00...2.60
 3rd speed rpm : 650
 travel mm : 4.90...5.50
 4th speed rpm : 1145
 travel mm : 8.30...8.50
 5th speed rpm : 1250
 travel mm : 9.20...9.60

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1120
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del.quantity : 133.0...135.0
 1000 : (130.0...138.0)
 Spread cm³ : 5.00
 1000 : (8.00)

RATED SPEED

1st version
Control lever
position degrees: 110...118

Testing:
1st rack travel in: 9.40
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1250...1280
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 100
Minimum rack travel: 6.20
Speed rpm : 225
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 300...360

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1100
Del.quantity cm3/ : 145.0...153.0
1000 s: (143.0...155.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.40
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 330.0...380.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.90...5.10

Remarks:

:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 26.02.93
 Replaces : 11.92
 Test oil : ISO-4113
 Combination no. : 0 401 846 956
 Injection pump
 Pump designation : PE6P120A32ORS3196
 EP type number : 0 411 826 763
 Governor
 Governor design. : RGV200...1100PA729-4
 Governor no. : 0 421 813 950

Customer-spec. information
 Customer : SCANIA

Engine : D5C9 10

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 2.30

Overflow
 quantity min. 1/h: 170...0

Test nozzle holder
 assembly : 1 688 901 104

Opening
 pressure, bar : 250...253

Orifice plate
 diameter mm : 0,7

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.50...10.60

Del.quantity cm³/ : 13.2...13.4

100 s: (12.9...13.7)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 250.0

Rack travel in mm : 4.6...5.0

Del.quantity cm³/ : 1.3...1.9

100 s: (-)

Spread cm³ : 0.4

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 0.70...1.10

2nd speed rpm : 350

travel mm : 2.00...2.60

3rd speed rpm : 650

travel mm : 4.90...5.50

4th speed rpm : 1145

travel mm : 8.30...8.50

5th speed rpm : 1250

travel mm : 9.20...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 132.0...134.0
1000 : (129.0...137.0)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 9.50
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1235...1265
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 56...66

Testing:
Speed rpm : 150
Minimum rack travel: 5.80
Speed rpm : 250
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 320...380

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 10.50...10.60

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.20
2nd pressure hPa : 350
Rack travel in m: 10.30...10.40
3rd pressure hPa : 320
Rack travel in m: 9.90...10.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1100
Del.quantity cm³/ : 128.0...136.0
1000 s: (126.0...138.0)
Aneroid pressure h: -

E26

Speed rpm : 500
Del.quantity cm³/ : 114.0...118.0
1000 s: (112.0...120.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.50
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 110.0...130.0
1000 s: (-)
Rack travel in mm : 9.80...10.20

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.60...4.80

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with RO80
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 05.03.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 303Z
 Injection pump
 Pump designation : PE6P100A320RS384-1Z
 EP type number : 0 411 806 189
 Governor
 Governor design. : RSV250...1100P5A51G
 Governor no. : 0 421 833 191

Cust. part no. : 0397803

Customer-spec. information
 Customer : DAF

Engine : DK 1160 M

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

E27

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 850
 Rack travel in mm : 10.30...10.40
 Del. quantity cm³/ : 9.0...9.2
 100 s : (8.8...9.4)
 Spread cm³ : 0.3
 100 s : (0.6)

2nd speed rpm : 250.0
 Rack travel in mm : 7.2...7.4
 Del. quantity cm³/ : 1.2...1.6
 100 s : (0.9...1.8)
 Spread cm³ : 0.3
 100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 850
 Del. quantity : 90.0...92.0
 1000 : (88.0...94.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 91...99

Testing:
 1st rack travel in: 9.30
 Speed rpm : 1025...1035
 2nd rack travel in: 4.00
 Speed rpm : 1075...1105
 3rd rack travel in: 4.00
 Speed rpm : 1160...1190
 4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 67...75

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.8

Testing:

Speed rpm : 100

Speed rpm : 250

Rack travel in mm : 7.20...7.40

Rack travel in mm : 2.00

Speed rpm : 700...760

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 10.30...10.40

2nd speed rpm : 400

Rack travel in m: 10.50...10.60

3rd speed rpm : 300

Rack travel in m: 10.70...11.20

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30

Speed rpm : 1025...1035

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 195.0...235.0

1000 s: (191.0...239.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250

Rack travel in mm : 7.20...7.40

Del.quantity cm³/ : 12.0...16.0

1000 s: (9.5...18.5)

Spread cm³ : 3.50

1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN
 Edition : 03.12.92
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 726
 Injection pump
 Pump designation : PE6P110A720RS3109
 EP type number : 0 411 816 732
 Governor
 Governor design. : RSV200...900P1/421
 Governor no. : 0 421 833 132

Customer-spec. information
 Customer : VOLVO-PENTA

Engine : TD 100 G

1st version kW : 203.0

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

FO1

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 12.60...12.70
 Del. quantity cm³/ : 16.6...16.8
 100 s : (16.3...17.1)
 Soread cm³ : 0.4
 100 s : (0.8)

2nd speed rpm : 250
 Rack travel in mm : 4.20...4.40
 Del. quantity cm³/ : 1.7...2.1
 100 s : (-)
 Spread cm³ : 0.3
 100 s : (0.6)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Del. quantity : 166.0...168.0
 1000 : (163.0...171.0)
 Spread cm³ : 4.00
 1000 : (8.00)

RATED SPEED

1st version
 Control lever
 position degrees: 42...50

Testing:
 1st rack travel in: 11.60
 Speed rpm : 940...955
 2nd rack travel in: 4.00
 Speed rpm : 970...1000
 4th rack travel in: 1140

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 15...23

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 3.80

Speed rpm : 250

Rack travel in mm : 4.20...4.40

Rack travel in mm : 2.00

Speed rpm : 270...330

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.60

Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 20.00...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 423
 Injection pump
 Pump designation : PES5P120A720LS7175
 -10
 EP type number : J 412 725 816
 Governor
 Governor design. : RQ300/1050PA774-4
 Governor no. : 0 421 801 453

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM449 LA

1st version kW : 221.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

F03

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600
 Rack travel in mm : 13.60...13.80
 Del.quantity cm³/ : 23.5...23.7
 100 s: (23.2...24.0)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.6...5.9
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 800
 Del.quantity : 235.0...237.0
 1000 : (232.0...240.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.00
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 13.00
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.7

Testing:

Speed rpm : 200
Minimum rack travel: 7.60
Speed rpm : 300
Rack travel in mm : 5.60...5.90
Rack travel in mm : 2.00
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : 0.65
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.00...13.20
2nd speed rpm : 750
Rack travel in m: 14.40...14.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600
1st pressure hPa : 200
Rack travel in m: 11.00...11.20
2nd pressure hPa : 450
Rack travel in m: 13.00...13.20
3rd pressure hPa : 1000
Rack travel in m: 13.70...13.80 *
4th pressure hPa : 1125
Rack travel in m: 14.10...14.30
5th pressure hPa : -
Rack travel in m: 10.00...10.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

F04

1st version

Aneroid pressure h: 1400
Speed rpm : 1050
Del.quantity cm3/ : 228.0...231.0
1000 s: (225.0...234.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400
Speed rpm : 750
Del.quantity cm3/ : 250.0...254.0
1000 s: (247.0...257.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 146.0...148.0
1000 s: (143.0...151.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 425
 Injection pump
 Pump designation : PES6P120A720LS7181
 -10
 EP type number : 0 412 726 870
 Governor
 Governor design. : RQ300/1050PA911-1
 Governor no. : 0 421 801 481

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 LA

1st version kW : 294.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

F05

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)

Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.20...15.40

Del.quantity cm³/ : 27.4...27.6

100 s: (27.1...27.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 274.0...276.0

1000 : (271.0...279.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.90
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 13.00
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0
Speed rpm : 300
Rack travel in mm : 5.80...6.20
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.50
2nd speed rpm : 1050
Rack travel in m: 14.90...15.10
3rd speed rpm : 850
Rack travel in m: 15.60...15.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 15.20...15.40

Measurement

Speed 1/min : 600
1st pressure hPa : 300
Rack travel in m: 10.90...11.10
2nd pressure hPa : 700
Rack travel in m: 14.00...14.10
3rd pressure hPa : 1300
Rack travel in m: 15.40...15.60
4th pressure hPa : 1450
Rack travel in m: 15.90...16.10
5th pressure hPa : -
Rack travel in m: 10.00...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600
Speed rpm : 1050

F06

Del.quantity cm3/ : 269.0...272.0
1000 s: (266.0...275.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1600
Speed rpm : 700
Del.quantity cm3/ : 298.0...301.0
1000 s: (295.0...304.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 143.0...145.0
1000 s: (140.0...148.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.90
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 250.0...270.0
1000 s: (246.0...274.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 433
 Injection pump
 Pump designation : PES6P120A720LS7176
 -10
 EP type number : 0 412 726 869
 Governor
 Governor design. : RQ300/1050PA911-4
 Governor no. : 9 420 080 318

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 A

1st version kW : 210.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

F07

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600
 Rack travel in mm : 14.50...14.70
 Del. quantity cm³/ : 21.5...21.7
 100 s: (21.2...22.0)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.0...6.4
 Del. quantity cm³/ : 1.0...1.6
 100 s: (0.7...1.9)
 Spread cm³ : 0.6
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 800
 Del. quantity : 215.5...217.5
 1000 : (212.5...220.5)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.60
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 12.60
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.2

Testing:

Speed rpm : 200
Minimum rack travel: 7.70
Speed rpm : 300
Rack travel in mm : 6.00...6.40
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.60...13.80
2nd speed rpm : 750
Rack travel in m: 15.00...15.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 14.50...14.70

Measurement

Speed 1/min : 600
1st pressure hPa : 300
Rack travel in m: 11.80...12.00
2nd pressure hPa : 550
Rack travel in m: 13.50...13.70
3rd pressure hPa : 1050
Rack travel in m: 14.70...14.80
4th pressure hPa : -
Rack travel in m: 10.70...11.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

F08

1st version

Aneroid pressure h: 1200
Speed rpm : 1050
Del.quantity cm3/ : 192.5...196.5
1000 s: (189.5...199.5)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm3/ : 220.0...223.0
1000 s: (217.0...226.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 131.0...133.0
1000 s: (128.0...136.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.60
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 205.0...225.0
1000 s: (201.0...229.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 453
 Injection pump
 Pump designation : PES5P120A720LS7174
 -10
 EP type number : 0 412 725 815
 Governor
 Governor design. : RQV300...1050PA979
 Governor no. : 9 420 080 298

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM449 A

1st version kW : 184.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

F09

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.10...14.30

Del.quantity cm³/ : 19.6...19.8

100 s: (19.3...20.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.7...6.9

Del.quantity cm³/ : 1.5...2.1

100 s: (1.2...2.4)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1050
 travel mm : 7.40...7.50

2nd speed rpm : 750
 travel mm : 4.80...5.20

3rd speed rpm : 500
 travel mm : 2.70...3.10

4th speed rpm : 300
 travel mm : 1.10...1.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600
Aneroid pressure h: 650
Del. quantity : 196.0...198.0
1000 : (193.0...201.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 14.10
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...74

Testing:
Speed rpm : 100
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.70...6.90

CONSTANT REGULATION
Speed rpm : 300...370

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 14.10...14.30

Measurement
Speed 1/min : 600

1st pressure hPa : 250
Rack travel in m: 12.20...12.40
2nd pressure hPa : 400
Rack travel in m: 13.50...13.70
3rd pressure hPa : 750
Rack travel in m: 14.20...14.30 *
4th pressure hPa : 850
Rack travel in m: 14.60...14.80
5th pressure hPa : -
Rack travel in m: 11.80...12.10

START CUT-OUT

F10

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1050
Del. quantity cm³/ : 217.5...220.5
1000 s: (214.5...223.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 750
Del. quantity cm³/ : 218.0...222.0
1000 s: (215.0...225.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 148.0...150.0
1000 s: (145.0...153.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 14.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL
 Edition : 21.01.93
 Replaces : 11.92
 Test oil : ISO-4113

Combination no. : 9 400 087 458

Injection pump
 Pump designation : PE6P120A32ORS3186
 EP type number : 0 411 826 756
 Governor
 Governor design. : RQV250...1025PA657
 -29
 Governor no. : 9 420 080 312

Customer-spec. information
 Customer : VOLVO

Engine : TD102FS

1st version kW : 250.0

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
 : (2.55...2.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.10...12.20

Del. quantity cm³/ : 21.0...21.2

100 s : (20.7...21.5)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 3.9...4.1

Del. quantity cm³/ : 1.6...2.1

100 s : (1.3...2.3)

Spread cm³ : 0.5

100 s : (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.10...1.30

2nd speed rpm : 500
 travel mm : 4.10...4.90

3rd speed rpm : 700
 travel mm : 6.30...6.70

4th speed rpm : 900
 travel mm : 6.30...6.70

5th speed rpm : 1025
 travel mm : 7.30...7.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1080

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1000

Del.quantity : 210.0...212.0
1000 : (207.0...215.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 11.10
Speed rpm : 1085...1095
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 61...69

Testing:

Speed rpm : 100
Minimum rack travel: 5.40
Speed rpm : 250
Rack travel in mm : 3.90...4.10

CONSTANT REGULATION

Speed rpm : 250...350

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.70...9.00
2nd pressure hPa : 75
Rack travel in m: 8.90...9.00
3rd pressure hPa : 425
Rack travel in m: 14.80...15.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 146.0...148.0
1000 s: (143.0...151.0)

F12

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1085...1095

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 250.0...290.0
1000 s: (246.0...294.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 3.90...4.10
Del.quantity cm3/ : 16.0...21.0
1000 s: (13.5...23.5)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 459
 Injection pump
 Pump designation : PES6P120A720LS7181
 -10
 EP type number : 0 412 726 870
 Governor
 Governor design. : RQ300/1050PA911-2
 Governor no. : 9 420 080 313

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 LA

1st version kw : 298.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 15.30...15.50

Del.quantity cm³/ : 27.9...28.1

100 s: (27.6...28.4)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm³/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1050

Del.quantity : 279.0...281.0

1000 : (276.0...284.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.00
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 14.90...15.10
2nd speed rpm : 700
Rack travel in m: 16.10...16.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 1050
Rack travel mm : 15.30...15.50

Measurement

Speed 1/min : 600

1st pressure hPa : 360
Rack travel in m: 10.70...10.90
2nd pressure hPa : 740
Rack travel in m: 13.90...14.10
3rd pressure hPa : 1340
Rack travel in m: 15.50...15.70
4th pressure hPa : 1440
Rack travel in m: 15.80...15.90
5th pressure hPa : -
Rack travel in m: 9.20...9.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

F14

1st version

Aneroid pressure h: 1600
Speed rpm : 1050
Del.quantity cm3/ : 263.0...266.0
1000 s: (260.0...269.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1600
Speed rpm : 700
Del.quantity cm3/ : 297.0...300.0
1000 s: (294.0...303.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 124.0...126.0
1000 s: (121.0...129.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 14.00
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 265.0...285.0
1000 s: (261.0...289.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 460
 Injection pump
 Pump designation : PES6P120A720LS7114
 -13
 EP type number : 0 412 726 867
 Governor
 Governor design. : RQ300/1050PA911-3
 Governor no. : 9 420 080 314

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 LA

1st version kw : 260.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

F15

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600
 Rack travel in mm : 13.40...13.60
 Del. quantity cm³/ : 22.5...22.7
 100 s: (22.2...23.0)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.8...6.2
 Del. quantity cm³/ : 1.0...1.6
 100 s: (0.7...1.9)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 800
 Del. quantity : 225.0...227.0
 1000 : (222.0...230.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.20
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.10...13.30
2nd speed rpm : 800
Rack travel in m: 14.00...14.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.40...13.60

Measurement

Speed 1/min : 600

1st pressure hPa : 240
Rack travel in m: 10.50...10.70
2nd pressure hPa : 560
Rack travel in m: 12.50...12.70
3rd pressure hPa : 920
Rack travel in m: 13.60...13.70
4th pressure hPa : 980
Rack travel in m: 13.80...13.90
5th pressure hPa : -
Rack travel in m: 9.50...9.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

F16

1st version

Aneroid pressure h: 1500
Speed rpm : 1050
Del.quantity cm3/ : 213.0...217.0
1000 s: (210.0...220.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del.quantity cm3/ : 237.5...240.5
1000 s: (234.5...243.5)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 130.0...132.0
1000 s: (127.0...135.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 461
 Injection pump
 Pump designation : PES5P120A720LS7174
 -10
 EP type number : 0 412 725 815
 Governor
 Governor design. : RQ300/1050PA774-6
 Governor no. : 9 420 080 315

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM449 A

1st version kW : 184.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

F17

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600
 Rack travel in mm : 13.90...14.10
 Del.quantity cm³/ : 19.3...19.5
 100 s: (19.0...19.8)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.6...7.0
 Del.quantity cm³/ : 1.7...2.3
 100 s: (1.4...2.6)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 700
 Del.quantity : 193.5...195.5
 1000 : (190.5...198.5)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.70
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.8

Testing:

Speed rpm : 100
Minimum rack travel: 10.00
Speed rpm : 300
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 390...430

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 600

1st pressure hPa : 340
Rack travel in m: 11.60...11.80
2nd pressure hPa : 520
Rack travel in m: 13.00...13.20
3rd pressure hPa : 960
Rack travel in m: 14.10...14.20
4th pressure hPa : 1040
Rack travel in m: 14.30...14.40
5th pressure hPa : -
Rack travel in m: 10.80...11.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1300
Speed rpm : 1050
Del.quantity cm³/ : 208.5...211.5
1000 s: (205.5...214.5)

Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1300
Speed rpm : 750
Del.quantity cm³/ : 209.0...213.0
1000 s: (206.0...216.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 131.0...133.0
1000 s: (128.0...136.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 197.0...217.0
1000 s: (193.0...221.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 462
 Injection pump
 Pump designation : PES5P120A720LS7175
 -10
 EP type number : 0 412 725 816
 Governor
 Governor design. : RQ300/1G50PA774-7
 Governor no. : 9 420 080 316

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM449 LA

1st version kW : 220.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.60...13.80

Del. quantity cm³/ : 23.3...23.5

100 s: (23.0...23.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.5...5.9

Del. quantity cm³/ : 1.1...1.7

100 s: (0.8...2.0)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 850

Del. quantity : 233.5...235.5

1000 : (230.5...238.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.70
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 13.00
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 365...405

TORQUE CONTROL

Dimension a mm : 0.65
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.70...13.90
2nd speed rpm : 750
Rack travel in m: 14.50...14.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 850
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 600

1st pressure hPa : 340
Rack travel in m: 10.30...10.40
2nd pressure hPa : 600
Rack travel in m: 12.40...12.60
3rd pressure hPa : 1160
Rack travel in m: 13.80...13.90
4th pressure hPa : 1240
Rack travel in m: 14.10...14.30
5th pressure hPa : -
Rack travel in m: 9.30...9.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

F20

1st version

Aneroid pressure h: 1400
Speed rpm : 1050
Del.quantity cm3/ : 231.0...234.0
1000 s: (228.0...237.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400
Speed rpm : 750
Del.quantity cm3/ : 251.0...255.0
1000 s: (248.0...258.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 125.0...127.0
1000 s: (122.0...130.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 222.0...242.0
1000 s: (218.0...246.0)

Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 464
 Injection pump
 Pump designation : PES6P120A720LS7257
 -10
 EP type number : 9 400 087 086
 Governor
 Governor design. : RQV300...1050PA1029
 Governor no. : 9 420 080 325

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 447 LA

1st version kW : 257.6
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

F21

Prestroke mm : 4.60...4.70
 : (4.55...4.75)
 Rack travel in mm : 21.00...3.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.60...13.80

Del. quantity cm³/ : 25.8...26.0

100 s: (25.5...26.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.1...5.4

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1050
 travel mm : 7.70...7.90

2nd speed rpm : 300
 travel mm : 0.50...1.00

3rd speed rpm : 500
 travel mm : 3.00...3.50

4th speed rpm : 700
 travel mm : 5.20...5.70

5th speed rpm : 1165
 travel mm : 9.20...9.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1000
Del. quantity : 258.0...260.0
1000 : (255.0...263.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 12.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 78...86

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 300...450

TORQUE CONTROL
Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.40...13.60
2nd speed rpm : 700
Rack travel in m: 13.60...13.80
3rd speed rpm : 850
Rack travel in m: 13.60...13.80
4th speed rpm : 950
Rack travel in m: 13.40...13.60

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 13.60...13.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.10

F22

2nd pressure hPa : 250
Rack travel in m: 10.20...10.40
3rd pressure hPa : 700
Rack travel in m: 13.10...13.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1050
Del. quantity cm³/ : 244.5...247.5
1000 s: (241.5...250.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 124.0...126.0
1000 s: (121.0...129.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 250.0...270.0
1000 s: (246.0...274.0)

Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 087 466

Injection pump
 Pump designation : PES6P120A720LS7257
 -10
 EP type number : 9 400 087 086
 Governor
 Governor design. : RQV300...1050PA1029
 -2
 Governor no. : 9 420 080 327

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 447 LA

1st version kW : 301.8
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

F23

Test pressure, bar: 25...27

Prestroke mm : 4.60...4.70
 : (4.55...4.75)
 Rack travel in mm : 21.00...0.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 15.00...15.20

Del. quantity cm³/ : 31.3...31.5
 100 s: (31.0...31.8)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.1...5.4
 Del. quantity cm³/ : 1.4...2.0
 100 s: (1.1...2.3)

Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1050
 travel mm : 7.30...7.50
 2nd speed rpm : 300
 travel mm : 0.50...1.00
 3rd speed rpm : 500
 travel mm : 3.10...3.60
 4th speed rpm : 700
 travel mm : 4.80...5.30
 5th speed rpm : 1200
 travel mm : 9.20...9.70

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1150
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700
Aneroid pressure h: 1500
Del.quantity : 313.5...315.5
1000 : (310.5...318.5)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 14.00
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 78...86

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

Speed rpm : 275...425

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 15.00...15.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.70...11.00
2nd pressure hPa : 250
Rack travel in m: 11.10...11.30
3rd pressure hPa : 800
Rack travel in m: 14.00...14.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

F24

1st version

Aneroid pressure h: 1500
Speed rpm : 1050
Del.quantity cm3/ : 301.5...304.5
1000 s: (298.5...307.5)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 143.0...145.0
1000 s: (140.0...148.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.00
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 297.0...317.0
1000 s: (293.0...321.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 467
 Injection pump
 Pump designation : PES5P120A720LS7174
 -10
 EP type number : 0 412 725 815
 Governor
 Governor design. : RQ300/1050PA774-8
 Governor no. : 9 420 080 328

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 449 A

1st version kw : 170.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

F25

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 13.90...14.10

Del. quantity cm³/ : 19.7...19.9

100 s: (19.4...20.2)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.6...7.0

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 800

Del. quantity : 197.5...199.5

1000 : (194.5...202.5)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.00
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.8

Testing:
Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 6.70...6.90
Rack travel in mm : 2.00
Speed rpm : 395...435

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 800
Rack travel mm : 13.90...14.10

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.90...11.20
2nd pressure hPa : 270
Rack travel in m: 11.80...11.90
3rd pressure hPa : 450
Rack travel in m: 13.10...13.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 1050
Del.quantity cm3/ : 193.0...196.0
1000 s: (190.0...199.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 131.0...133.0
1000 s: (128.0...136.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.00
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 11.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 468
 Injection pump
 Pump designation : PES5P120A720LS7174
 -10
 EP type number : 0 412 725 815
 Governor
 Governor design. : RGV300...1050PA1041
 Governor no. : 9 420 080 329

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM449 A

1st version kW : 184.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

F27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 600
 Rack travel in mm : 13.90...14.10
 Del. quantity cm³/ : 19.3...19.5
 100 s : (19.0...19.8)
 Spread cm³ : 0.5
 100 s : (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.6...7.0
 Del. quantity cm³/ : 1.7...2.3
 100 s : (1.4...2.6)
 Spread cm³ : 0.8
 100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 300
 travel mm : 1.20...1.60
 2nd speed rpm : 500
 travel mm : 3.00...3.50
 3rd speed rpm : 900
 travel mm : 5.60...6.10
 4th speed rpm : 1100
 travel mm : 7.40...7.90
 5th speed rpm : 1210
 travel mm : 9.30...9.80

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1140
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600

Aneroid pressure h: 700
Del. quantity : 193.5...195.5
1000 : (190.5...198.5)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 111...119

Testing:
1st rack travel in: 13.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Control lever
position degrees: 66...74

Testing:
Speed rpm : 100
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.70...6.90

CONSTANT REGULATION
Speed rpm : 350...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 13.90...14.10

Measurement
Speed 1/min : 600

1st pressure hPa : 340
Rack travel in m: 11.60...11.80
2nd pressure hPa : 520
Rack travel in m: 13.00...13.20
3rd pressure hPa : 960
Rack travel in m: 14.10...14.20
4th pressure hPa : 1040
Rack travel in m: 14.30...14.40
5th pressure hPa : -
Rack travel in m: 10.80...11.10

START CUT-OUT

Speed 1/min : 220 (240)

F28

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1300
Speed rpm : 1050
Del. quantity cm³/ : 208.5...211.5
1000 s: (205.5...214.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1300
Speed rpm : 750
Del. quantity cm³/ : 209.0...213.0
1000 s: (206.0...216.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 131.0...133.0
1000 s: (128.0...136.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 197.0...217.0
1000 s: (193.0...221.0)

Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 05.03.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 472
 Injection pump
 Pump designation : PES6P120A720LS7114-3
 EP type number : 0 412 726 820
 Governor
 Governor design. : RQV300...1050PA1041
 -1
 Governor no. : 9 420 080 335

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 LA

1st version kW : 257.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

GO1

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.40...13.60

Del. quantity cm³/ : 22.5...22.7

100 s: (22.2...23.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.8...6.2
 Del. quantity cm³/ : 1.0...1.6
 100 s: (0.7...1.9)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.20...1.60
 2nd speed rpm : 500
 travel mm : 3.00...3.50
 3rd speed rpm : 900
 travel mm : 5.60...6.10
 4th speed rpm : 1100
 travel mm : 7.40...7.90
 5th speed rpm : 1210
 travel mm : 9.30...9.80

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1140
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600

Aneroid pressure h: 780
Del. quantity : 225.0...227.0
1000 : (222.0...230.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 110...118

Testing:

1st rack travel in: 12.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 63...71

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 325...500

TORQUE CONTROL

Dimension a mm : 0.40
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.10...13.30
2nd speed rpm : 800
Rack travel in m: 14.00...14.20
3rd speed rpm : 930
Rack travel in m: 13.60...13.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 780
Rack travel mm : 13.40...13.60

Measurement

Speed 1/min : 600

1st pressure hPa : 240
Rack travel in m: 10.50...10.70
2nd pressure hPa : 560
Rack travel in m: 12.50...12.70

GO2

3rd pressure hPa : 920
Rack travel in m: 13.60...13.70
4th pressure hPa : 980
Rack travel in m: 13.80...13.90
5th pressure hPa : -
Rack travel in m: 9.60...9.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 1050
Del. quantity cm³/ : 213.0...217.0
1000 s: (210.0...220.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 800
Del. quantity cm³/ : 237.5...240.5
1000 s: (234.5...243.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.02.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 087 475

Injection pump
 Pump designation : PES5P120A720LS7280
 EP type number : 9 400 087 087
 Governor
 Governor design. : RQV300...1050PA1029
 -3
 Governor no. : 9 420 080 341

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 449 LA

1st version kW : 220.8
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

G03

Prestroke mm : 4.60...4.70
 : (4.55...4.75)
 Rack travel in mm : 21.00...0.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.20...13.40

Del. quantity cm³/ : 24.2...24.4

100 s: (23.9...24.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.0...5.3

Del. quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1050
 travel mm : 7.70...7.90

2nd speed rpm : 300
 travel mm : 0.50...1.00

3rd speed rpm : 500
 travel mm : 3.00...3.50

4th speed rpm : 700
 travel mm : 5.20...5.70

5th speed rpm : 1165
 travel mm : 9.20...9.70

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1120
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700

Aneroid pressure h: 1300
Del.quantity : 242.0...244.0
1000 : (239.0...247.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 12.20
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 78...86

Testing:
Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 250...400

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1300
Rack travel mm : 13.20...13.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.50...9.80
2nd pressure hPa : 520
Rack travel in m: 10.30...10.50
3rd pressure hPa : 800
Rack travel in m: 12.00...12.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1300
Speed rpm : 1050
Del.quantity cm³/ : 238.0...241.0
1000 s: (235.0...244.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 116.5...119.5
1000 s: (113.5...122.5)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 250.0...270.0
1000 s: (246.0...274.0)

Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.02.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 476
 Injection pump
 Pump designation : PES6P120A720LS7181
 -10
 EP type number : 0 412 726 870
 Governor
 Governor design. : RQV300...1050PA1055
 Governor no. : 9 420 080 337

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447LA

1st version kW : 301.8
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

G05

Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 15.00...15.10

Del.quantity cm³/ : 26.5...26.7

100 s: (26.2...27.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm³/ : 1.1...1.7

100 s: (0.8...2.0)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.20...1.60

2nd speed rpm : 500
 travel mm : 3.00...3.50

3rd speed rpm : 900
 travel mm : 5.60...6.10

4th speed rpm : 1100
 travel mm : 7.40...7.90

5th speed rpm : 1210
 travel mm : 9.30...9.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1140

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1200
Del.quantity : 265.0...267.0
1000 : (262.0...270.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 111...119

Testing:
1st rack travel in: 14.00
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1
Control lever
position degrees: 64...72

Testing:
Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 325...475

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1200
Rack travel mm : 15.00...15.10

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.90...10.20
2nd pressure hPa : 500
Rack travel in m: 11.10...11.30
3rd pressure hPa : 820
Rack travel in m: 13.60...13.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

G06

1st version
Aneroid pressure h: 1200
Speed rpm : 700
Del.quantity cm³/ : 267.5...270.5
1000 s: (264.5...273.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 14.00
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 250.0...270.0
1000 s: (246.0...274.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 11.0...17.0
1000 s: (8.0...20.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.02.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 477
 Injection pump
 Pump designation : PES6P120A72ORS3256
 EP type number : 9 400 087 071
 Governor
 Governor design. : RGV300...1300PA1057
 Governor no. : 9 420 080 338

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 125.1
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 U25

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 20.00...21.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 4.80...5.40

Del. quantity cm³/ : 1.7...2.0

100 s: (1.4...2.3)

Spread cm³ : 0.2

100 s: (0.3)

2nd speed rpm : 300.0

Rack travel in mm : 7.2...7.5

Del. quantity cm³/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.80...1.30

2nd speed rpm : 660

travel mm : 3.80...4.30

3rd speed rpm : 960

travel mm : 5.20...5.70

4th speed rpm : 1357

travel mm : 8.00...8.50

5th speed rpm : 1492

travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1385

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Del.quantity : 17.0...20.0
1000 : (14.0...23.0)
Spread cm³ : 2.00
1000 : (3.00)

RATED SPEED

1st version
Control Lever
position degrees: 106...114

Testing:
1st rack travel in: 9.60
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1415...1445
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 73...81

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 300
Rack travel in mm : 7.30...7.50

CONSTANT REGULATION
Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 10.70...10.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.10
2nd pressure hPa : 350
Rack travel in m: 10.10...10.30
3rd pressure hPa : 420
Rack travel in m: 10.70...10.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

G08

1st version
Aneroid pressure h: 1200
Speed rpm : 1300
Del.quantity cm³/ : 140.0...142.0
1000 s: (137.0...145.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm³/ : 115.0...119.0
1000 s: (112.0...122.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 63.0...65.0
1000 s: (60.0...68.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.60
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 90.0...110.0
1000 s: (86.0...114.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.20...7.50
Del.quantity cm³/ : 10.0...16.0
1000 s: (7.0...19.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

Start-of-delivery blocking at 4.05 mm
after cyl. 1 start-of-delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.02.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 087 479

Injection pump
 Pump designation : PES6P120A720LS7257
 -10

EP type number : 9 400 087 086
 Governor
 Governor design. : RQV300...1050PA1029
 -4

Governer no. : 9 420 080 340

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 447 LA

1st version kW : 257.6
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

G09

Test pressure, bar: 25...27

Prestroke mm : 4.60...4.70
 : (4.55...4.75)
 Rack travel in mm : 21.00...0.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.60...13.80

Del. quantity cm³/ : 24.6...24.8

100 s: (24.3...25.1)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.3...5.6
 Del. quantity cm³/ : 1.1...1.7
 100 s: (0.8...2.0)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1050
 travel mm : 7.70...7.90
 2nd speed rpm : 300
 travel mm : 0.50...1.00
 3rd speed rpm : 500
 travel mm : 3.00...3.50
 4th speed rpm : 700
 travel mm : 5.20...5.70
 5th speed rpm : 1165
 travel mm : 9.20...9.70

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1120
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700
Aneroid pressure h: 1000
Del.quantity : 246.5...248.5
1000 : (243.5...251.5)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 12.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1155...1185
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 78...86

Testing:
Speed rpm : 100
Minimum rack trave: 8.00
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 275...425

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 13.60...13.80

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.70...10.00
2nd pressure hPa : 320
Rack travel in m: 10.50...10.70
3rd pressure hPa : 700
Rack travel in m: 12.70...13.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1050
Del.quantity cm3/ : 245.5...248.5
1000 s: (242.5...251.5)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 113.0...115.0
1000 s: (110.0...118.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 225.0...245.0
1000 s: (221.0...249.0)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CAS 8,3 h 1
Edition : 02.04.93
Replaces : 12.10.92
Test oil : ISO-4113
Combination no. : 9 400 230 058
Injection pump
Pump designation : PES6A95D320LS2647
Governor
Governor design. : RSV400...1100A2B2172
R

Customer-spec. information
Customer : CASE

Engine : A 504 BDT

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 9 681 273 009

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 9 681 230 706

Outside diameter
x Wall thickness
x Length mm : 6,00x2,00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.95...3.05
: (2.90...3.10)
Rack travel in mm : 10.50
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.60...9.70

Del.quantity cm3/ : 10.4...10.6

100 s: (10.2...10.8)

Spread cm3 : 0.35

100 s: (0.60)

2nd speed rpm : 400

Rack travel in mm : 4.80...5.00

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.35

100 s: (0.55)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 104.5...106.5

1000 : (102.5...108.5)

Spread cm3 : 3.5

1000 : (6.0)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 8.60

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1185...1215

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.40

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 4.80...5.00
Rack travel in mm : 2.00
Speed rpm : 525...585

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 9.60...9.70
2nd speed rpm : 750
Rack travel in m: 10.25...10.35
3rd speed rpm : 600
Rack travel in m: 10.20...10.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 111.5...115.5
1000 s: (109.5...117.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.60
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.00...150.00
1000 s: (137.0...153.0)

Remarks:

: CASE # A-182102
Start-of-delivery mark is at start of
delivery of cylinder 1

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a35
 Edition : 1.4.93
 Replaces : 17.05.90
 Test oil : ISO-4113

Combination no. : 9 400 230 089CP

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1000AOC2190

Cust. part no. : 3915949

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CTA 8.3

1st version kW : 171.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.20...13.30

Del.quantity cm³/ : 13.1...13.3

100 s: (12.9...13.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 1.4...1.8

100 s: (1.1...2.0)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 131.0...133.0

1000 : (129.0...135.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 12.20
Speed rpm : 1050...1060
2nd rack travel in: 4.00
Speed rpm : 1130...1160
3rd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.50...5.70

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.20
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC 11,0 x4
 Edition : 26.02.93
 Replaces : 3.83
 Test oil : ISO-4113
 Combination no. : 9 400 231 156
 Injection pump
 Pump designation : PES6P110A720RS6006
 EP type number : 9 410 231 008
 Governor
 Governor design. : RQV300/600...1050PA
 621-3K
 Governor no. : 9 420 232 059
 Customer-spec. information
 Customer : MACK TRUCKS INC.

Engine : EME 6-300

1st version kW : 223.7
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 14.00...14.00
 Del.quantity cm³/ : 21.3...21.5
 100 s : (21.1...21.7)
 Spread cm³ : 0.4
 100 s : (0.7)

2nd speed rpm : 300.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm³/ : 1.7...2.7
 100 s : (1.5...2.9)
 Spread cm³ : 0.5
 100 s : (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 0.80...1.20
 2nd speed rpm : 300
 travel mm : 1.80...2.20
 3rd speed rpm : 720
 travel mm : 4.30...4.70
 4th speed rpm : 1200
 travel mm : 8.90...9.40

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1120
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del.quantity : 212.5...214.5
 1000 : (210.5...216.5)
 Spread cm³ : 4.50
 1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 60...66

Testing:
1st rack travel in: 13.00
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1255
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 17...23

Testing:
Speed rpm : 250
Minimum rack travel: 9.80
Speed rpm : 300
Rack travel in mm : 7.90...8.10
Rack travel in mm : 2.00
Speed rpm : 710...770

CONSTANT REGULATION
Speed rpm : 380...600

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 14.00...14.00
2nd speed rpm : 850
Rack travel in m: 14.15...14.25
3rd speed rpm : 750
Rack travel in m: 14.65...14.75
4th speed rpm : 630
Rack travel in m: 15.20...15.30
5th speed rpm : 500
Rack travel in m: 14.60...14.80

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 850
Del.quantity cm³/ : 210.0...213.0
1000 s: (208.0...215.0)
Spread cm³ : 6.50
1000 s: (10.0)
Speed rpm : 630
Del.quantity cm³/ : 235.0...238.0
1000 s: (233.0...240.0)
Spread cm³ : 6.50
1000 s: (10.0)

BREAKAWAY

1st version

G16

1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 110.0...170.0
1000 s: (100.0...180.0)
Rack travel in mm : 12.70...12.90

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 17.0...27.0
1000 s: (-)
Spread cm³ : 5.50
1000 s: (8.00)

Remarks: : MACK #313 GC 5151 P9

See VDT-I-MAC 002

PLE dimension = 0.740" - 0.820"

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAC
 Edition : 02.04.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 9 400 231 157

Injection pump
 Pump designation : PES6P110A72ORS6006
 EP type number : 9 410 231 008
 Governor
 Governor design. : RQV300/600...1050PA
 621-3K
 Governor no. : 9 420 232 059

Customer-spec. information
 Customer : MACK TRUCKS INC.

Engine : EME 6-300

1st version kW : 223.7
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

G17

Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 14.00...14.00

Del.quantity cm3/ : 21.3...21.5

100 s: (21.1...21.7)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 1.7...2.7

100 s: (1.5...2.9)

Spread cm3 : 0.5

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 0.80...1.20

2nd speed rpm : 300
 travel mm : 1.80...2.20

3rd speed rpm : 720
 travel mm : 4.30...4.70

4th speed rpm : 1200
 travel mm : 8.90...9.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1120

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 212.5...214.5

1000 : (210.5...216.5)

Spread cm3 : 4.50

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 60...66

Testing:
1st rack travel in: 13.00
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1255
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 17...23

Testing:
Speed rpm : 250
Minimum rack travel: 9.80
Speed rpm : 300
Rack travel in mm : 7.90...8.10
Rack travel in mm : 2.00
Speed rpm : 710...770

CONSTANT REGULATION
Speed rpm : 380...600

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 14.00...14.00
2nd speed rpm : 850
Rack travel in m: 14.15...14.25
3rd speed rpm : 750
Rack travel in m: 14.65...14.75
4th speed rpm : 630
Rack travel in m: 15.20...15.30
5th speed rpm : 500
Rack travel in m: 14.60...14.80

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 850
Del.quantity cm3/ : 210.0...213.0
1000 s: (208.0...215.0)
Spread cm3 : 6.50
1000 s: (10.0)
Speed rpm : 630
Del.quantity cm3/ : 235.0...238.0
1000 s: (233.0...240.0)
Spread cm3 : 6.50
1000 s: (10.0)

BREAKAWAY

1st version

G18

1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 110.0...170.0
1000 s: (100.0...180.0)
Rack travel in mm : 12.70...12.90

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...5.10
Del.quantity cm3/ : 17.0...27.0
1000 s: (-)
Spread cm3 : 5.50
1000 s: (8.00)

Remarks: : MACK #313 GC 5151 P9

See VDT-I-MAC 002

PLE dimension = 0.740" - 0.820"

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 5,9 a11
 Edition : 05.03.93
 Replaces : 10.91
 Test oil : ISO-4113
 Combination no. : 9 407 083 279
 Injection pump
 Pump designation : PES6A80D32ORS1271
 EP type number : 9 400 083 058
 Governor
 Governor design. : RSV350...1400A2C2179
 R
 Governor no. : 9 420 083 281
 Customer spec. information
 Customer : MWM
 Engine : D229-6
 1st version kW : 100.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 003
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.20...2.30
 : (2.15...2.35)

G19

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1400
 Rack travel in mm : 10.00...10.10
 Del. quantity cm³/ : 5.8...5.9
 100 s: (5.7...6.1)
 Spread cm³ : 0.2
 100 s: (0.4)
 2nd speed rpm : 350.0
 Rack travel in mm : 7.1...7.3
 Del. quantity cm³/ : 0.9...1.2
 100 s: (0.7...1.3)
 Spread cm³ : 0.2
 100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1400
 Del. quantity : 58.5...59.5
 1000 : (57.0...61.0)
 Spread cm³ : 2.50
 1000 : (4.00)

RATED SPEED

1st version

Control lever
position degrees: 101...109

Testing:
1st rack travel in: 9.00
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1480...1510
4th rack travel in: 1650
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.7

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 7.10...7.30
Rack travel in mm : 2.00
Speed rpm : 620...680

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.00...10.10
2nd speed rpm : 500
Rack travel in m: 10.70...10.80
3rd speed rpm : 800
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm3/ : 50.5...52.5
1000 s: (48.5...54.5)
Speed rpm : 800
Del.quantity cm3/ : 53.0...55.0
1000 s: (51.0...57.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.00
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

G20

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.10...7.30
Del.quantity cm3/ : 9.0...12.0
1000 s: (7.5...13.5)
Spread cm3 : 2.00
1000 s: (3.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MMM 3,9 b 5
 Edition : 05.03.93
 Replaces : 10.91
 Test oil : ISO-4113
 Combination no. : 9 407 083 296
 Injection pump
 Pump designation : PES4A80D32ORS1282
 EP type number : 9 400 083 056
 Governor
 Governor design. : RSV350...1500A2C2122
 -2R
 Governor no. : 9 420 083 286

Customer-spec. information
 Customer : MMM

Engine : D 229-4

1st version kW : 64.0
 Rated speed : 3000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30
 : (2.15...2.35)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 21.00
 Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm : 1500

Rack travel in mm : 10.20...10.30

Del.quantity cm³/ : 6.0...6.1

100 s: (5.8...6.2)

Spread cm³ : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 6.9...7.1

Del.quantity cm³/ : 0.7...1.0

100 s: (0.6...1.2)

Spread cm³ : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 6.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1500

Del.quantity : 60.0...61.0

1000 : (58.5...62.5)

Spread cm³ : 2.50

1000 : (4.00)

RATED SPEED

1st version

Control lever
position degrees: 117...125

Testing:
1st rack travel in: 9.20
Speed rpm : 1540...1550
2nd rack travel in: 4.00
Speed rpm : 1610...1640
4th rack travel in: 1800
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 78...86
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 6.90...7.10
Rack travel in mm : 2.00
Speed rpm : 660...720

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1500
Rack travel in m: 10.20...10.30
2nd speed rpm : 500
Rack travel in m: 11.20...11.30
3rd speed rpm : 800
Rack travel in m: 11.00...11.30
4th speed rpm : 1100
Rack travel in m: 10.60...10.90

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 500
Del.quantity cm3/ : 55.0...57.0
1000 s: (53.0...59.0)
Speed rpm : 800
Del.quantity cm3/ : 58.5...61.5
1000 s: (56.5...63.5)
Speed rpm : 1100
Del.quantity cm3/ : 60.5...62.5
1000 s: (58.5...64.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.20
Speed rpm : 1540...1550

STARTING FUEL DELIVERY

Speed rpm : 100
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.90...7.10
Del.quantity cm3/ : 7.5...10.5
1000 s: (6.0...12.0)
Spread cm3 : 2.00
1000 s: (3.50)

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3.9 P43
Edition : 08.04.93
replaces : 14.04.92
Calibrating oil : ISO-4113
Injection pump : VE4/12F110CR378-7
Type number : 0 460 424 074
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 4 BT-390

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): +0.02(0.04)

Start of delivery block
Piston stroke mm: 1.8
mm: +0.02(0.06)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

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Speed 1/min: 900
Setting value mm: 2.30...2.70
Shutoff
electromagnet Volt: 12

Supply-pump pressure
Speed 1/min: 900
Setting value bar: 4.10...4.70
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 750
Del. quantity cm3/
1000S.: 63.50...64.50
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 500
Del. quantity cm3/
1000S.: 6.00...12.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1170
Del. quantity cm3/
1000S.: 31.50...38.50
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 70.00...120.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 3.10...3.90
mm: (2.80...4.20)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 900

TD travel mm: 2.30...2.70
 mm: (1.80...3.20)
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 650
 TD travel mm: 0.70...1.50
 mm: (0.40...1.80)
 Shutoff
 electromagnet Volt: 12
 Supply-pump pressure characteristic:
 1st speed 1/min: 500
 Supply-pump pressure bar: 2.40...3.00
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 900
 Supply-pump pressure bar: 4.10...4.70
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1100
 Supply-pump pressure bar: 4.90...5.50
 Shutoff
 electromagnet Volt: 12
 Overflow quantity at overflow valve:
 1st speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 41.70...83.40
 (26.70...98.40)
 2nd speed 1/min: 1100
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 55.60...139.00
 (40.60...154.00)
 Delivery-quant. and breakaway char.:
 2nd speed 1/min: 1260
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 3rd speed 1/min: 1190
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 10.00...40.00
 1000S.: (10.00...40.00)
 4th speed 1/min: 1170
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 31.50...38.50
 1000S.: (29.00...41.00)
 5th speed 1/min: 1100

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 60.50...63.50
 1000S.: (59.00...65.00)
 6th speed 1/min: 900
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 60.80...63.80
 1000S.: (58.80...65.80)
 7th speed 1/min: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 63.50...64.50
 1000S.: (61.00...67.00)
 8th speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 61.00...69.00
 1000S.: (59.00...71.00)
 Mech. shutoff:
 Mech. Abst \ddot{u} llung:
 1st speed 1/min: 1100
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: 12
 Electr. shutoff:
 1st speed 1/min: 500
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -
 Idle delivery:
 1st speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.00...12.00
 1000S.: (4.00...14.00)
 Dispersion cm³/: 5.5
 1000S.: (7.0)
 2nd speed 1/min: 570
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...4.00
 1000S.: (0.00...4.00)
 Automatic starting fuel delivery:
 1st speed 1/min: 130
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 70.00...130.00
 1000S.: (70.00...130.00)

2nd speed 1/min: 240
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 30.00...70.00
1000s.: (30.00...70.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 70.00...120.00
1000s.: (70.00...120.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: K-OT
MS	mm: 1.2...1.6
SVS max.	mm: 3.2

Remarks:

: C.D.C. # 391 7528
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1.9 K
Edition : 08.04.93
replaces : 05.12.91
Calibrating oil : ISO 4113
Injection pump : VE4/9F2100R466
Type number : 0 460 494 304
Customer-specific information
Customer : FIAT - TIPO / TEMPRA
Engine : M710

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 6.00...6.40
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

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Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 5.70...6.30
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 52.00...53.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 39.50...40.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 450
Charge press hPa: -
Del. quantity cm3/
1000S.: 11.00...15.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 700
Charge press. hPa: -
Del. quantity cm3/
1000S.: 4.00...6.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2300
Charge press hPa: 1000

Del. quantity cm³/
1000S.: 35.00...41.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Charge press hPa: -
Del. quantity cm³/
mind 1000S.: 50.0
KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: -
Inj.-qty. cm³/
difference 1000S.: 5.00...7.00 #
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
SP press.-dif.measurement
pompa di mandata (FP)
1.Speed 1/min: 1500
Charge press hPa: -
Supply pump
pressure
difference bar: 0.10...0.30 #
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
Charge press hPa: 1000
TD travel mm: 3.90...5.50 A
mm: (3.20...6.20)

KSB/AFB
valve Volt: 12
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 3.50...6.50 B
mm: -

KSB/AFB
valve Volt: 12

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Shutoff
electromagnet Volt: 12
3rd speed 1/min: 800
Charge press hPa: 1000
TD travel mm: 1.60...2.40
mm: (1.30...2.70)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 6.00...6.40
mm: (5.60...6.80)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
5th speed 1/min: 2100
Charge press. hPa: 1000
TD travel mm: 8.60...9.40
mm: (8.30...9.70)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 800
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.70...4.30
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.70...6.30
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.30...7.90
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Overflow : 75.00...119.00
quantity cm³/10s: (60.00...134.00)
2nd speed 1/min: 2100
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 97.00...180.50
quantity cm³/10s: (82.00...195.50)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800*
Charge-air pressure-setting
point hPa: 400
LDA-stroke mm: 5.2
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: (48.50...49.50
(46.50...51.50)
2nd speed 1/min: 2450
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: (17.00...25.00
(16.00...26.00)
3rd speed 1/min: 2300
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: (35.00...41.00
(33.00...43.00)
4th speed 1/min: 2100
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: (47.60...50.60
(46.60...51.60)
5th speed 1/min: 1500
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: (52.00...53.00
(50.50...54.50)
6th speed 1/min: 800
Charge press. hPa: 1000

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KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: (54.00...57.00
-
7th speed 1/min: 800
Charge press. hPa: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: (38.70...40.70
(37.20...42.20)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Charge press. hPa: -
Del. quantity cm³/1000s.: (0.00...3.00
-
Shutoff
electromagnet volt: -
KSB/AFB
valve Volt: 12

Damper set qty.:

LFG-setting:

solidale con carcassa:
Idle delivery:

1st speed 1/min: 450
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: (11.00...15.00
(9.00...17.00)

Residual:

1. Rotacao 1/min: 700
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: (4.00...6.00
(3.00...7.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
Charge press. hPa: -
Inj.-qty. cm³ : 8.0...16.00 "
difference 1000s.: -

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1500
Charge press. hPa: --
TD-travel : 0.80...1.10 "
difference mm: -

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 220
Charge press. hPa: --
KSE/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 52.00...78.00
1000S.: -

2nd speed 1/min: 300
Charge press. hPa: --
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.50...45.50
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4
KF mm: 5.2...5.6
MS mm: 1.0...1.4
LDA stroke mm: 5.2

Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 05.03.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 876 795

Injection pump
 Pump designation : PE6P110A320LS3835-2
 EP type number : 0 411 816 761
 Governor
 Governor design. : RSV350...1000POA827
 -2
 Governor no. : 0 421 833 404

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM 441

1st version kw : 129.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

H02

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 11.40...11.50

Del.quantity cm3/ : 11.0...11.2

100 s: (10.7...11.4)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 350.0
 Rack travel in mm : 7.7...8.3
 Del.quantity cm3/ : 1.2...1.8
 100 s: (0.9...2.0)
 Spread cm3 : 0.4
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 980
 Del.quantity : 110.0...112.0
 1000 : (107.5...114.5)
 Spread cm3 : 4.00
 1000 : (8.00)

RATED SPEED

1st version
 Control lever
 position degrees: 94...102

Testing:

1st rack travel in: 10.40
Speed rpm : 1030...1040
2nd rack travel in: 4.00
Speed rpm : 1100...1118
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 73...81
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 8.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 350
Rack travel in mm : 7.90...8.10
Rack travel in mm : 2.00
Speed rpm : 420...480

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 980
Rack travel in m: 11.40...11.50
2nd speed rpm : 750
Rack travel in m: 11.40...11.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 98.0...102.0
1000 s: (95.0...105.0)
Spread cm³ : 6.00
1000 s: (8.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1030...1040

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

H03

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.02.93
 Replaces : 02.93
 Test oil : ISO-4113

Combination no. : 0 401 876 797

Injection pump
 Pump designation : PE6P120A320LS3815-13
 EP type number : 0 411 826 782
 Governor
 Governor design. : RSV350...1000POA827
 -3
 Governor no. : 0 421 833 402

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM441A

1st version kw : 177.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 105...125

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

HO4

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)

Rack travel in mm : 20.00...21.00

Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 11.00...11.10

Del.quantity cm³/ : 17.1...17.3

100 s: (16.8...17.6)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 4.7...5.3

Del.quantity cm³/ : 1.4...2.2

100 s: (1.1...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Del.quantity : 171.0...173.0

1000 : (168.0...176.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 95...103

Testing:

1st rack travel in: 10.00
Speed rpm : 1030...1040
2nd rack travel in: 4.00
Speed rpm : 1100...1118
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 350
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 380...440

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del. quantity cm³/ : 172.0...176.0
1000 s: (169.0...179.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1030...1040

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 190.0...210.0
1000 s: (186.0...214.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : LIE
Edition : 26.02.93
Replaces : 04.92
Test oil : ISO-4113
Combination no. : 0 401 878 714
Injection pump
Pump designation : PE8P110A320LS3853
EP type number : 0 411 818 720
Governor
Governor design. : RSV400...900P1A544
Governor no. : 0 421 833 326

Customer-spec. information
Customer : LIEBHERR

Engine : D 9308 T

1st version kW : 260.0
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90
: (3.75...3.95)
Rack travel in mm : 9.00...12.00

H06

Firing order : 1- 8- 7- 2- 6- 3-
5- 4

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 890

Rack travel in mm : 13.80...13.90

Del.quantity cm3/ : 17.5...17.8

100 s: (17.2...18.0)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 1.3...1.8

100 s: (1.0...2.0)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 890

Del.quantity : 175.0...178.0

1000 : (172.5...180.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 87...95

Testing:

1st rack travel in: 12.80

Speed rpm : 930...940

2nd rack travel in: 4.00

Speed rpm : 945...975
3rd rack travel in: 4.00
Speed rpm : 950...980
4th rack travel in: 1120
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4
Speed rpm : 400
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 450...510

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 890
Rack travel in m: 13.80...13.90
2nd speed rpm : 500
Rack travel in m: 13.80...14.00
3rd speed rpm : 420
Rack travel in m: 15.00...15.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del. quantity cm³/ : 176.0...184.0
1000 s: (173.0...187.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 930...940

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 150.0...170.0
1000 s: (146.0...174.0)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del. quantity cm³/ : 13.0...18.0
1000 s: (10.5...20.5)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

H07

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 22.01.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 036 747
 Injection pump
 Pump designation : PES6P110A12ORS3296
 EP type number : 0 412 016 738
 Governor
 Governor design. : RQV400...1250PA1014
 -1K
 Governor no. : 0 421 815 291

Customer-spec. information
 Customer : CUMMINS

Engine : 6BTA-A

1st version kW : 130.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 22...24

H08

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250
 Rack travel in mm : 13.00...13.10
 Del.quantity cm³/ : 14.4...14.6
 100 s: (14.2...14.8)
 Spread cm³ : 0.4
 100 s: (0.7)

2nd speed rpm : 400.0
 Rack travel in mm : 5.2...5.4
 Del.quantity cm³/ : 1.7...2.1
 100 s: (1.5...2.4)
 Spread cm³ : 0.6
 100 s: (0.9)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 400
 travel mm : 1.50...1.90
 2nd speed rpm : 600
 travel mm : 2.80...3.30
 3rd speed rpm : 1000
 travel mm : 4.80...5.40
 4th speed rpm : 1310
 travel mm : 7.20...7.40
 5th speed rpm : 1500
 travel mm : 8.90...9.30

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 1200

Del. quantity : 144.0...146.0
1000 : (142.0...148.0)
Spread cm3 : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Testing:
1st rack travel in: 12.00
Speed rpm : 1295...1305
2nd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1580
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 11...19

Testing:
Speed rpm : 275
Minimum rack travel: 7.00
Speed rpm : 400
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed rpm : 350...700

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.00...13.10
2nd speed rpm : 800
Rack travel in m: 11.00...11.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1250
Pressure hPa : 1200
Rack travel mm : 13.00...13.10

Measurement

Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 8.30...8.70
2nd pressure hPa : 255
Rack travel in m: 9.60...9.70
3rd pressure hPa : 565
Rack travel in m: 11.60...12.00

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 800
Del. quantity cm3/ : 136.5...140.5
1000 s: (134.5...142.5)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 97.5...101.5
1000 s: (95.5...103.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 1295...1305

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 10.90...11.90

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.20...5.40
Del. quantity cm3/ : 17.5...21.5
1000 s: (15.0...24.0)
Spread cm3 : 6.00
1000 s: (9.00)

Remarks:

: C.D.C. # 3921837
Start-of-delivery mark 6° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 9,6 v
 Edition : 05.03.93
 Replaces : 04.87
 Test oil : ISO-4113
 Combination no. : 0 402 046 787
 Injection pump
 Pump designation : PES6P110A72ORS3104
 EP type number : 0 412 016 712
 Governor
 Governor design. : RQV375...1000PA862
 Governor no. : 0 421 813 625

Customer-spec. information
 Customer : KHD

Engine : BF6L513R

1st version kW : 156.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness : 6.00x1.50x600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

H10

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.20...13.30

Del.quantity cm³/ : 13.9...14.1
 100 s : (13.6...14.4)

Spread cm³ : 0.4
 100 s : (0.7)

2nd speed rpm : 375.0
 Rack travel in mm : 8.0...8.2
 Del.quantity cm³/ : 1.6...2.2
 100 s : (1.3...2.4)
 Spread cm³ : 0.4
 100 s : (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 375
 travel mm : 0.90...1.10
 2nd speed rpm : 410
 travel mm : 1.60...1.90
 3rd speed rpm : 550
 travel mm : 2.80...3.10
 4th speed rpm : 1050
 travel mm : 8.50...8.60
 5th speed rpm : 1110
 travel mm : 9.50...9.80

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1050
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Del.quantity : 139.0...141.0
 1000 : (136.0...144.0)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 117...125

Testing:
1st rack travel in: 12.20
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1105...1135
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 86...94

Testing:
Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 375
Rack travel in mm : 8.00...8.20

CONSTANT REGULATION
Speed rpm : 375...480

TORQUE CONTROL
Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 13.20...13.30
2nd speed rpm : 650
Rack travel in m: 13.40...13.50
3rd speed rpm : 825
Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 650
Del.quantity cm3/ : 146.0...150.0
1000 s: (143.0...153.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.20
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 170.0...200.0
1000 s: (166.0...204.0)

H11

Remarks:

APPLICATION

Excavator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,7 a17
 Edition : 26.02.93
 Replaces : 06.92
 Test oil : ISO-4113
 Combination no. : 0 402 046 807
 Injection pump
 Pump designation : PES6P110A82OLS3131
 EP type number : 0 412 016 715
 Governor
 Governor design. : RQV300..1100PA916
 Governor no. : 0 421 813 748

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447

1st version kW : 168.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
 : (4.25...4.45)
 Rack travel in mm : 9.00...12.00
 Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.40...11.50

Del. quantity cm³/ : 13.7...13.9

100 s: (13.4...14.1)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del. quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.4

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.60...1.90

2nd speed rpm : 425
 travel mm : 3.30...3.70

3rd speed rpm : 920
 travel mm : 5.70...6.10

4th speed rpm : 1155
 travel mm : 7.90...8.40

5th speed rpm : 1255
 travel mm : 9.70...10.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1160

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100

Del.quantity : 137.0...139.0
1000 : (134.5...141.5)
Spread cm³ : 4.00
1000 : (8.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 10.40
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 85...93

Testing:
Speed rpm : 200
Minimum rack trave: 9.20
Speed rpm : 300
Rack travel in mm : 7.60...7.80

CONSTANT REGULATION
Speed rpm : 300...500

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm³/ : 113.0...116.0
1000 s: (110.0...119.0)
Spread cm³ : 5.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.40
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

H13

Del.quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC
 Edition : 05.03.93
 Replaces : 02.93
 Test oil : ISO-4113
 Combination no. : 0 402 046 838
 Injection pump
 Pump designation : PES6P100A320LS3306
 EP type number : 0 412 006 703
 Governor
 Governor design. : RQV350...1200PA1042K
 Governor no. : 0 421 815 320

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 172.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 14.00...17.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 13.80...13.90

Del. quantity cm³/ : 15.9...16.1

100 s: (15.7...16.3)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 6.0...6.2

Del. quantity cm³/ : 1.7...2.1

100 s: (1.5...2.4)

Spread cm³ : 0.4

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.80...2.00

2nd speed rpm : 500

travel mm : 3.50...3.90

3rd speed rpm : 800

travel mm : 6.20...6.60

4th speed rpm : 1250

travel mm : 9.30...9.50

5th speed rpm : 1400

travel mm : 10.50...11.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1440

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1200

Del. quantity : 159.5...161.5
1000 : (157.5...163.5)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 13.60
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1415...1445
4th rack travel in: 1530
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 74...83

Testing:

Speed rpm : 275
Minimum rack travel: 7.70
Speed rpm : 350
Rack travel in mm : 6.10...6.30

CONSTANT REGULATION

Speed rpm : 350...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 800
Rack travel in m: 13.80...13.90
2nd speed rpm : 1200
Rack travel in m: 14.60...14.80
3rd speed rpm : 600
Rack travel in m: 12.90...13.30

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1200
Pressure hPa : 1200
Rack travel mm : 14.50...14.70

Measurement

Speed 1/min : 1200

1st pressure hPa : -
Rack travel in m: 10.40...10.80
2nd pressure hPa : 300
Rack travel in m: 11.50...11.60
3rd pressure hPa : 660

H15

Rack travel in m: 13.50...13.90

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1200
Del. quantity cm³/ : 160.0...164.0
1000 s: (158.0...166.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1200
Del. quantity cm³/ : 94.5...98.5
1000 s: (92.5...100.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.60
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 120.0...160.0
1000 s: (115.0...165.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.00...6.20
Del. quantity cm³/ : 17.5...21.5
1000 s: (15.0...24.0)
Spread cm³ : 4.00
1000 s: (6.50)

Remarks:

: NAVISTAR #1819913C91

Delivery valve spring pre-tension =
6.00...6.10 mm.
Permissible alteration from 5.70...6.30
mm

Bow dimension:

Sliding-sleeve position = 37.0 mm
Limit shutoff stop screw to 1.0 mm.

Start-of-delivery blocking at start of
delivery of cylinder no. 1.



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC
 Edition : 21.04.93
 Replaces : 10.92
 Test oil : ISO-4113

Combination no. : 0 402 046 841

Injection pump
 Pump designation : PES6P100A320LS3309
 EP type number : 0 412 006 704
 Governor
 Governor design. : RQV350...1300PA1042
 -4K
 Governor no. : 0 421 815 328

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-408

1st version kW : 171.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 175...195

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

H17

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 14.00...17.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.00...13.10

Del.quantity cm³/ : 14.1...14.3

100 s: (13.9...14.5)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm³ : 0.4

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.60...2.00

2nd speed rpm : 500
 travel mm : 3.80...4.20

3rd speed rpm : 800
 travel mm : 5.80...6.20

4th speed rpm : 1300
 travel mm : 8.90...9.10

5th speed rpm : 1500
 travel mm : 10.40...10.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 1200
 Del.quantity : 141.5...143.5
 1000 : (139.5...145.5)

Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:
1st rack travel in: 12.00
Speed rpm : 1340...1370
2nd rack travel in: 4.00
Speed rpm : 1510...1520
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 16...24

Testing:
Speed rpm : 275
Minimum rack travel: 6.50
Speed rpm : 350
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION
Speed rpm : 350...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 13.00...13.10
2nd speed rpm : 1000
Rack travel in m: 12.60...12.80
3rd speed rpm : 700
Rack travel in m: 11.80...12.20
4th speed rpm : 900
Rack travel in m: 12.50...12.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1300
Pressure hPa : 1200
Rack travel mm : 13.00...13.10

Measurement
Speed 1/min : 1300

1st pressure hPa : -
Rack travel in m: 9.30...9.70
2nd pressure hPa : 300
Rack travel in m: 10.50...10.60
3rd pressure hPa : 670

H18

Rack travel in m: 11.80...12.20

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1000
Del. quantity cm³/ : 143.5...147.5
1000 s: (141.5...149.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 900
Del. quantity cm³/ : 85.5...89.5
1000 s: (83.5...91.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 1340...1370

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 120.0...160.0
1000 s: (115.0...165.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.40...5.60
Del. quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 4.00
1000 s: (6.50)

Remarks: : NAVISTAR #1819917C91

Limit shutoff stop screw to 1.0 mm.

Bow dimension:
Sliding-sleeve position = 37.0 mm
Start-of-delivery blocking at start of
delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 402 046 842

Injection pump
 Pump designation : PES6P100A320LS3309
 EP type number : 0 412 006 704
 Governor
 Governor design. : RQV350...1300PA1042
 -5K
 Governor no. : 0 421 815 329

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-408

1st version kW : 156.5
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 240...260

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

H19

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 14.00...15.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 14.2...14.4

100 s: (14.0...14.6)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 5.3...5.5

Del.quantity cm³/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm³ : 0.4

100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

travel mm : 1.60...2.00

2nd speed rpm : 500

travel mm : 3.80...4.20

3rd speed rpm : 800

travel mm : 5.80...6.20

4th speed rpm : 1300

travel mm : 8.90...9.10

5th speed rpm : 1500

travel mm : 10.40...10.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300

Aneroid pressure h: 1200

Del.quantity : 142.0...144.0

1000 : (140.0...146.0)

Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 59...67

Testing:

1st rack travel in: 11.90
Speed rpm : 1340...1370
2nd rack travel in: 4.00
Speed rpm : 1510...1520
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...24

Testing:

Speed rpm : 275
Minimum rack travel: 6.00
Speed rpm : 350
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 350...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 12.90...13.00
2nd speed rpm : 900
Rack travel in m: 12.50...12.70
3rd speed rpm : 700
Rack travel in m: 11.80...12.20

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1300
Pressure hPa : 1200
Rack travel mm : 12.90...13.00

Measurement

Speed 1/min : 1300

1st pressure hPa : -
Rack travel in m: 9.30...9.70
2nd pressure hPa : 290
Rack travel in m: 10.40...10.50
3rd pressure hPa : 700
Rack travel in m: 11.80...12.20

H2O

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 900
Del.quantity cm³/ : 146.0...150.0
1000 s: (144.0...152.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1300
Del.quantity cm³/ : 85.5...89.5
1000 s: (83.5...91.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1340...1370

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...160.0
1000 s: (115.0...165.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 4.00
1000 s: (6.50)

Remarks:

: NAVISTAR #1819918C91

Limit shutoff stop screw to 1.0 mm.

Bow dimension:

Sliding-sleeve position = 37.0 mm
Start-of-delivery blocking at start of
delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC
 Edition : 26.02.93
 Replaces : 02.93
 Test oil : ISO-4113
 Combination no. : 0 402 046 845
 Injection pump
 Pump designation : PES6P100A320LS3309
 EP type number : 0 412 006 704
 Governor
 Governor design. : RQV350...1300PA1042
 -6K
 Governor no. : 0 421 815 330

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-408

1st version kW : 142.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 058
 Inlet press., bar : 2.80
 Overflow quantity min. 1/h: 240...260
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

H21

BEGINNING OF DELIVERY

Test pressure, bar: 22...24
 Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 14.00...17.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900
 Rack travel in mm : 12.10...12.20
 Del. quantity cm³/ : 13.6...13.8
 100 s: (13.4...14.0)
 Spread cm³ : 0.8
 100 s: (1.2)
 2nd speed rpm : 350.0
 Rack travel in mm : 5.4...5.6
 Del. quantity cm³/ : 1.3...1.7
 100 s: (1.0...1.9)
 Spread cm³ : 0.4
 100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.60...2.00
 2nd speed rpm : 500
 travel mm : 3.80...4.20
 3rd speed rpm : 800
 travel mm : 5.80...6.20
 4th speed rpm : 1300
 travel mm : 8.90...9.10
 5th speed rpm : 1500
 travel mm : 10.40...10.80

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1500
 Rack travel in mm : 8.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 900
Aneroid pressure h : 1200
Del. quantity : 136.5...138.5
1000 : (134.5...140.5)
Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 11.40
Speed rpm : 1340...1370
2nd rack travel in: 4.00
Speed rpm : 1500...1510
4th rack travel in: 1530
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 71...79

Testing:
Speed rpm : 275
Minimum rack trave: 6.00
Speed rpm : 350
Rack travel in mm : 5.40...5.60

CONSTANT REGULATION
Speed rpm : 350...520

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 12.10...12.20
2nd speed rpm : 1300
Rack travel in m: 12.40...12.60
3rd speed rpm : 700
Rack travel in m: 11.40...11.80

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1300
Pressure hPa : 1200
Rack travel mm : 12.40...12.60

Measurement
Speed 1/min : 1300

1st pressure hPa : -

H22

Rack travel in m: 9.50...9.90
2nd pressure hPa : 250
Rack travel in m: 10.30...10.40
3rd pressure hPa : 600
Rack travel in m: 11.60...12.00

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1300
Del. quantity cm³/ : 134.0...138.0
1000 s: (132.0...140.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1300
Del. quantity cm³/ : 87.0...91.0
1000 s: (85.0...93.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.40
Speed rpm : 1340...1370

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 120.0...160.0
1000 s: (115.0...165.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.40...5.60
Del. quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 4.00
1000 s: (6.50)

Remarks: : NAVISTAR #1819922C91

Bow dimension:
Sliding-sleeve position = 37.0 mm
Limit shutoff stop screw to 1.0 mm.

Start-of-delivery blocking at start of

delivery of cylinder no. 1.



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : AIF 11,6 a
 Edition : 05.03.93
 Replaces : 12.91
 Test oil : ISO-4113

Combination no. : 0 402 076 058

Injection pump
 Pump designation : PES6P120A700RS532-1
 EP type number : 0 412 026 061
 Governor
 Governor design. : RSV300...1200POA552
 Governor no. : 0 421 833 368

Customer-spec. information
 Customer : IVECO-AIFO

Engine : 8361 SRM 37

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

H24

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13.50...13.70

Del. quantity cm³/ : 23.4...23.6

100 s: (23.1...23.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.6...5.0

Del. quantity cm³/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 900

Del. quantity : 234.0...236.0

1000 : (231.0...239.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Testing:

1st rack travel in: 12.50

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1295...1325

4th rack travel in: 1450

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 66...74

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 4.3

Testing:

Speed rpm : 100

Speed rpm : 300

Rack travel in mm : 4.70...4.90

Rack travel in mm : 2.00

Speed rpm : 345...405

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 13.50...13.60

2nd speed rpm : 550

Rack travel in m: 13.50...13.70

3rd speed rpm : 350

Rack travel in m: 14.70...15.30

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 900

Rack travel mm : 13.50...13.70

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 12.00...12.20

2nd pressure hPa : 400

Rack travel in m: 12.90...13.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.50

Speed rpm : 1240...1250

LOW IDLE

H25

Speed rpm : 300
Rack travel in mm : 4.60...5.00
Del. quantity cm³/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 059
 Injection pump
 Pump designation : PES6P110A720RS370
 EP type number : 0 412 016 052
 Governor
 Governor design. : RSV500...900POA455-5
 Governor no. : 0 421 833 400

Customer spec. information
 Customer : JOHN DEERE

Engine : 6619T F01

1st version kW : 200.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 175...178

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 9.00...12.00

H26

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.60...10.70

Del.quantity cm³/ : 12.3...12.5

100 s : (12.1...12.7)

Spread cm³ : 0.4

100 s : (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 6.3...6.5

Del.quantity cm³/ : 1.9...2.3

100 s : (1.6...2.5)

Spread cm³ : 0.6

100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 123.0...125.0

1000 : (121.0...127.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 9.60

Speed rpm : 945...955

2nd rack travel in: 4.00

Speed rpm : 1040...1050

3rd rack travel in: 4.00
Speed rpm : 1030...1060
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 5.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 500
Rack travel in mm : 6.30...6.50

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 10.60...10.70
2nd speed rpm : 650
Rack travel in m: 11.20...11.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650
Del.quantity cm³/ : 138.0...142.0
1000 s: (136.0...144.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 945...955

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 180.0...200.0
1000 s: (175.0...205.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 6.30...6.50
Del.quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

H27

: JOHN DEERE # AR88760

Starting/full-load transition speed
from holding magnet = 450 1/min.

Start-of-delivery mark is at 15°
angular displacement of the cam after
start of delivery at cylinder 1 with
control-rod travel 9.00...12.00 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE
 Edition : 21.04.93
 Replaces : 01.93
 Test oil : ISO-4113
 Combination no. : 0 402 076 752
 Injection pump
 Pump designation : PES6P11GA720RS3144
 EP type number : 9 410 231 035
 Governor
 Governor design. : RSV400...1050PDA513
 Governor no. : 0 421 833 399

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6619 A

1st version kW : 215.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

H28

Prestroke mm : 3.45...3.55
 : (3.40...3.60)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.60...13.70

Del. quantity cm³/ : 21.5...21.7

100 s : (21.3...21.9)

Spread cm³ : 0.4

100 s : (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del. quantity cm³/ : 1.8...2.2

100 s : (1.5...2.4)

Spread cm³ : 0.6

100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 900

Del. quantity : 215.0...217.0

1000 : (213.0...219.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 12.60
Speed rpm : 1100...1110
2nd rack travel in: 4.00
Speed rpm : 1180...1190
3rd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1280
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 400
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.60...13.70
2nd speed rpm : 750
Rack travel in m: 14.40...14.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.40...14.60

Measurement

Speed 1/min : 500
1st pressure hPa : -
Rack travel in m: 11.20...11.40
2nd pressure hPa : 240
Rack travel in m: 12.10...12.50
3rd pressure hPa : 720
Rack travel in m: 14.00...14.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 600
Speed rpm : 750
Del.quantity cm3/ : 219.5...223.5
1000 s: (217.5...225.5)
Aneroid pressure h: -
Speed rpm : 500

J01

Del.quantity cm3/ : 156.0...160.0
1000 s: (154.0...162.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.60
Speed rpm : 1100...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 170.0...190.0
1000 s: (166.0...194.0)

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: JOHN DEERE # RE23749

Starting/full-load transition speed
from holding magnet = 450 1/min.

Start-of-delivery mark 13° cam angle
after start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 755
 Injection pump
 Pump designation : PES6P110A320LS3318
 EP type number : 0 412 016 741
 Governor
 Governor design. : RSV350...750P4A561
 Governor no. : 0 421 833 406

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 185.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 175...195

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

J02

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.50...12.60

Del. quantity cm³/ : 20.9...21.1

100 s: (20.7...21.3)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 5.5...5.7

Del. quantity cm³/ : 3.9...4.3

100 s: (3.7...4.5)

Spread cm³ : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 209.0...211.0

1000 : (207.0...213.0)

Spread cm³ : 8.00

1000 : (12.00)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 11.50
Speed rpm : 765...775
2nd rack travel in: 4.00
Speed rpm : 800...810
3rd rack travel in: 4.00
Speed rpm : 805...815
4th rack travel in: 900
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.60

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.50...5.70

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 765...775

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.50...5.70
Del.quantity cm3/ : 39.5...43.5
1000 s: (37.0...45.0)
Spread cm3 : 4.00
1000 s: (6.50)

Remarks:

: NAVISTAR #1820271C91

Start-of-delivery blocking at start of
delivery of cylinder no. 1.

APPLICATION

Generator

J03

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 755A
 Injection pump
 Pump designation : PES6P110A320LS3318
 EP type number : 0 412 016 741
 Governor
 Governor design. : RSV350...750P4A561
 Governor no. : 0 421 833 406

Cust. part no. : 1820271C91A

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kw : 208.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 175...195

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.50...12.60

Del.quantity cm³/ : 19.9...20.1

100 s: (19.7...20.3)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 3.9...4.3

100 s: (3.7...4.5)

Spread cm³ : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 199.5...201.5

1000 : (197.5...203.5)

Spread cm³ : 8.00

1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 45...53

Testing:
1st rack travel in: 11.50
Speed rpm : 915...925
2nd rack travel in: 4.00
Speed rpm : 940...950
3rd rack travel in: 4.00
Speed rpm : 945...955
4th rack travel in: 1050
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.6

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 5.50...5.70

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.50
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 39.5...43.5
1000 s: (37.0...45.0)
Spread cm³ : 4.00
1000 s: (6.50)

Start-of-delivery blocking at start of
delivery of cylinder no. 1.

APPLICATION

J05

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 756
 Injection pump
 Pump designation : PES6P100A320LS3317
 EP type number : 0 412 006 706
 Governor
 Governor design. : RSV350...1200P2A562
 Governor no. : 0 421 833 407

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 204.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 175...195

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29
 Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 14.60...14.70

Del.quantity cm³/ : 16.8...17.0
 100 s: (16.6...17.2)

Spread cm³ : 0.8
 100 s: (1.2)

2nd speed rpm : 350.0
 Rack travel in mm : 4.8...5.0
 Del.quantity cm³/ : 1.5...1.9
 100 s: (1.2...2.1)
 Spread cm³ : 0.4
 100 s: (0.6)

GUIDE SLEEVE POSITION

Control-Lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Aneroid pressure h: 1500
 Del.quantity : 168.0...170.0
 1000 : (166.0...172.0)
 Spread cm³ : 8.00
 1000 : (12.00)

RATED SPEED

1st version

Control lever
position degrees: 53...61

Testing:
1st rack travel in: 13.60
Speed rpm : 1245...1255
2nd rack travel in: 4.00
Speed rpm : 1315...1325
3rd rack travel in: 4.00
Speed rpm : 1320...1330
4th rack travel in: 14.00
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.9

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 4.80...5.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 14.60...14.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.50...7.90
2nd pressure hPa : 290
Rack travel in m: 9.50...9.60
3rd pressure hPa : 700
Rack travel in m: 12.80...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 75.5...79.5
1000 s: (73.5...81.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.60
Speed rpm : 1245...1255

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 125.0...165.0
1000 s: (120.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.80...5.00
Del. quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 4.00
1000 s: (6.50)

Remarks:

Start-of-delivery blocking at start of 1
delivery of cylinder no. 1.

Delivery-valve spring pre-tension =
6.30...6.40 mm.

Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 756A

Injection pump
 Pump designation : PES6P100A320LS3317
 EP type number : 0 412 006 706
 Governor
 Governor design. : RSV350...1200P2A562
 Governor no. : 0 421 833 407

Cust. part no. : 1820269C91A

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kw : 185.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS
 Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow quantity min. 1/h: 175...195

Test nozzle holder assembly : 1 688 901 101

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13.90...14.00

Del. quantity cm³/ : 15.6...15.8

100 s: (15.4...16.0)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 4.8...5.0

Del. quantity cm³/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm³ : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 1500

Del. quantity : 156.0...158.0

1000 : (154.0...160.0)

Spread cm³ : 8.00

1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:
1st rack travel in: 12.90
Speed rpm : 1250...1260
2nd rack travel in: 4.00
Speed rpm : 1315...1325
3rd rack travel in: 4.00
Speed rpm : 1320...1330
4th rack travel in: 14.00
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.9

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 4.80...5.00

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 13.90...14.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.50...7.90
2nd pressure hPa : 270
Rack travel in m: 9.30...9.40
3rd pressure hPa : 640
Rack travel in m: 12.30...12.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 75.5...79.5
1000 s: (73.5...81.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.90
Speed rpm : 1250...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 125.0...165.0
1000 s: (120.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.80...5.00
Del. quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 4.00
1000 s: (6.50)

Start-of-delivery blocking at start of
delivery of cylinder no. 1.

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 756B
 Injection pump
 Pump designation : PES6P100A320LS3317
 EP type number : 0 412 006 706
 Governor
 Governor design. : RSV35G...1200P2A562
 Governor no. : 0 421 833 407

Cust. part no. : 1820269C91B

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 156.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 175...195

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance ± ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 13.40...13.50

Del. quantity cm³/ : 14.9...15.1

100 s: (14.7...15.3)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 4.8...5.0

Del. quantity cm³/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm³ : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 1500

Del. quantity : 149.0...151.0

1000 : (147.0...153.0)

Spread cm³ : 8.00

1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:
1st rack travel in: 12.40
Speed rpm : 1255...1265
2nd rack travel in: 4.00
Speed rpm : 1315...1325
3rd rack travel in: 4.00
Speed rpm : 1320...1330
4th rack travel in: 14.00
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.9

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 4.80...5.00

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 13.40...13.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.50...7.90
2nd pressure hPa : 260
Rack travel in m: 9.20...9.30
3rd pressure hPa : 600
Rack travel in m: 12.00...12.40

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 75.5...79.5
1000 s: (73.5...81.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1255...1265

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...165.0
1000 s: (120.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.80...5.00
Del.quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 4.00
1000 s: (6.50)

Start-of-delivery blocking at start of
delivery of cylinder no. 1.

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 076 756C
 Injection pump
 Pump designation : PES6P100A320LS3317
 EP type number : 0 412 006 706
 Governor
 Governor design. : RSV350...1200P2A562
 Governor no. : 0 421 833 407

Cust. part no. : 1820269C91C

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 145.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 058

Inlet press., bar : 2.80

Overflow
 quantity min. 1/h: 175...195

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.95...3.05
 : (2.90...3.10)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 12.80...12.90

Del. quantity cm³/ : 14.1...14.3

100 s: (13.9...14.5)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 350.0

Rack travel in mm : 4.8...5.0

Del. quantity cm³/ : 1.5...1.9

100 s: (1.2...2.1)

Spread cm³ : 0.4

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 1500

Del. quantity : 141.5...143.5

1000 : (139.5...145.5)

Spread cm³ : 8.00

1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:
1st rack travel in: 11.80
Speed rpm : 1260...1270
2nd rack travel in: 4.00
Speed rpm : 1315...1325
3rd rack travel in: 4.00
Speed rpm : 1320...1330
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.9

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 4.80...5.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 12.80...12.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.50...7.90
2nd pressure hPa : 240
Rack travel in m: 9.00...9.10
3rd pressure hPa : 530
Rack travel in m: 11.40...11.80

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 75.5...79.5
1000 s: (73.5...81.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1260...1270

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...165.0
1000 s: (120.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.80...5.00
Del.quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 4.00
1000 s: (6.50)

Start-of-delivery blocking at start of
delivery of cylinder no. 1.

Delivery-valve spring pre-tension =
6.30...6.40 mm.
Permissible alteration from 6.00...6.70
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 26.02.93
 Replaces : 02.93
 Test oil : ISO-4113
 Combination no. : 0 402 646 790
 Injection pump
 Pump designation : PE6P120A320LS7864
 EP type number : 0 412 626 879
 Governor
 Governor design. : RQV350...1050PA1052
 -2
 Governor no. : 0 421 814 044

Customer spec. information
 Customer : MERCEDES-BENZ
 Engine : OM401 LA, Euro 1

1st version kW : 213.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 110...130
 Test nozzle holder
 assembly : 1 688 901 105
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 075

Outside diameter
 x Wall thickness : 8.00X2.50X1000
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 550
 Rack travel in mm : 12.40...12.50
 Del. quantity cm³/ : 20.0...20.2
 100 s: (19.7...20.5)
 Spread cm³ : 0.5
 100 s: (0.9)
 2nd speed rpm : 350.0
 Rack travel in mm : 4.9...5.5
 Del. quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
 travel mm : 1.00...1.50
 2nd speed rpm : 453
 travel mm : 2.30...2.80
 3rd speed rpm : 770
 travel mm : 4.70...5.20
 4th speed rpm : 1108
 travel mm : 9.40...9.90

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1190
 Rack travel in mm : 10.10...12.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550
Aneroid pressure h: 1000
Del. quantity : 200.0...202.0
1000 : (197.0...205.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 99...107

Testing:
1st rack travel in: 11.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 65...73

Testing:
Speed rpm : 250
Minimum rack travel: 8.70
Speed rpm : 350
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 380...450

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.00...10.30

Measurement
Speed 1/min : 500

1st pressure hPa : 200
Rack travel in m: 10.40...10.50
2nd pressure hPa : 450
Rack travel in m: 11.70...11.90

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

J15

Aneroid pressure h: 1000
Speed rpm : 1050
Del. quantity cm3/ : 200.0...204.0
1000 s: (197.0...207.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1000
Speed rpm : 1050
Del. quantity cm3/ : 150.0...154.0 *
1000 s: (147.0...157.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm3/ : 126.0...128.0
1000 s: (123.0...131.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm3/ : 170.0...190.0
1000 s: (166.0...194.0)

Remarks: :

* = Set at reduced-delivery stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 9,0 L 1
 Edition : 26.02.93
 Replaces : 02.90
 Test oil : ISO-4113
 Combination no. : 0 402 646 848
 Injection pump
 Pump designation : PE6P120A32ORS7138
 EP type number : 0 412 626 822
 Governor
 Governor design. : RQV200...1100PA712-3
 Governor no. : 0 421 813 637

Customer-spec. information
 Customer : SAAB-SCANIA

Engine : DS9 05

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 4.40...4.50
 : (4.35...5.55)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 12.20...12.30
 Del.quantity cm³/ : 16.5...16.7
 100 s: (16.2...17.0)
 Spread cm³ : 0.6
 100 s: (0.9)
 2nd speed rpm : 225.0
 Rack travel in mm : 4.9...5.3
 Del.quantity cm³/ : 2.1...2.5
 100 s: (-)
 Spread cm³ : 0.3
 100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
 travel mm : 0.90...1.30
 2nd speed rpm : 350
 travel mm : 2.50...3.10
 3rd speed rpm : 650
 travel mm : 5.40...6.00
 4th speed rpm : 1145
 travel mm : 8.90...9.10
 5th speed rpm : 1280
 travel mm : 10.10...10.50

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1120
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 900
 Del.quantity : 165.0...167.0
 1000 : (162.0...170.0)

Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:
1st rack travel in: 11.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1265...1295
4th rack travel in: 14.00
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 125
Minimum rack travel: 6.00
Speed rpm : 225
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 300...360

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.20...12.30

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...11.00
2nd pressure hPa : 360
Rack travel in m: 11.80...11.90
3rd pressure hPa : 240
Rack travel in m: 11.00...11.20

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1100
Del. quantity cm³/ : 160.0...168.0
1000 s: (158.0...170.0)
Aneroid pressure h: -
Speed rpm : 500

Del. quantity cm³/ : 125.0...129.0
1000 s: (123.0...131.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 270.0...320.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.90...5.10

Remarks:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO
diaphragm.

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania
on 1988-09-21

Start of delivery - engine: 13° before
TDC

Firing sequence of engine:
1-5-3-6-2-4.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11.1 i1
 Edition : 26.02.93
 Replaces : 02.90
 Test oil : ISO-4113
 Combination no. : 0 402 646 865
 Injection pump
 Pump designation : PE6P120A720RS7020
 EP type number : 0 412 626 828
 Governor
 Governor design. : RQV200...1000PA539-8
 Governor no. : 0 421 813 635

Customer-spec. information
 Customer : SAAB-SCANIA

Engine : DS11 34

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 019
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 015
 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.00...5.10
 : (4.95...5.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 12.90...13.00
 Del. quantity cm³/ : 20.8...21.0
 100 s: (20.5...21.3)
 Spread cm³ : 0.6
 100 s: (0.9)

2nd speed rpm : 225.0
 Rack travel in mm : 4.6...5.0
 Del. quantity cm³/ : 1.8...2.2
 100 s: (-)
 Spread cm³ : 0.3
 100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
 travel mm : 1.20...1.60
 2nd speed rpm : 350
 travel mm : 2.40...3.00
 3rd speed rpm : 650
 travel mm : 4.50...5.10
 4th speed rpm : 1045
 travel mm : 8.40...8.60
 5th speed rpm : 1150
 travel mm : 9.80...10.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1050
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 900
 Del. quantity : 208.0...210.0
 1000 : (205.0...213.0)

Spread cm³ : 6.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 113...121

Testing:

1st rack travel in: 11.90
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 61...69

Testing:

Speed rpm : 125
Minimum rack travel: 5.80
Speed rpm : 225
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 340...400

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.90...13.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.90
2nd pressure hPa : 520
Rack travel in m: 12.30...12.40
3rd pressure hPa : 320
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1000
Del.quantity cm³/ : 198.0...206.0
1000 s: (196.0...208.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 151.0...155.0
1000 s: (149.0...157.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 275.0...325.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.60...4.80

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO
diaphragm.

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Start of delivery - engine: 13° before
TDC

Firing sequence of engine:
1-5-3-6-2-4.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,1 j1
 Edition : 26.02.93
 Replaces : 02.90
 Test oil : ISO-4113
 Combination no. : 0 402 646 868
 Injection pump
 Pump designation : PE6P120A72ORS7020
 EP type number : 0 412 626 828
 Governor
 Governor design. : RQ200/1000PA713-5
 Governor no. : 0 421 801 444

Customer-spec. information
 Customer : SAAB-SCANIA

Engine : DS11 34

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)

Rack travel in mm : 9.00...12.00

J20

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 20.8...21.0

100 s: (20.5...21.3)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 225.0

Rack travel in mm : 4.6...5.0

Del.quantity cm³/ : 1.8...2.2

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 208.0...210.0

1000 : (205.0...213.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.5

Testing:

1st rack travel in: 11.90

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1185...1215

4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 225
Rack travel in mm : 4.7

Testing:
Speed rpm : 125
Minimum rack travel: 5.80
Speed rpm : 225
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 305...345

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.90...13.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.90
2nd pressure hPa : 520
Rack travel in m: 12.30...12.40
3rd pressure hPa : 320
Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1000
Del.quantity cm³/ : 198.0...206.0
1000 s: (196.0...208.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 151.0...155.0
1000 s: (149.0...157.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1045...1060

STARTING FUEL DELIVERY

J21

Speed rpm : 100
Del.quantity cm³/ : 275.0...325.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.60...4.80

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO
diaphragm.

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Start of delivery - engine: 13° before
TDC

Firing sequence of engine:
1-5-3-6-2-4.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,1 o
 Edition : 26.02.93
 Replaces : 12.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 875
 Injection pump
 Pump designation : PE6P120A72ORS7126Z
 EP type number : 0 412 626 830
 Governor
 Governor design. : RQ200/1000PA745-1
 Governor no. : 0 421 801 472

Customer-spec. information
 Customer : SCANIA

Engine : DSC 11 08

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
 : (4.95...5.15)

Rack travel in mm : 9.00...12.00

J22

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.80...12.90

Del.quantity cm³/ : 20.4...20.6

100 s: (20.1...20.9)

Spread cm³ : 0.6

100 s: (0.9)

2nd speed rpm : 225.0

Rack travel in mm : 4.7...5.1

Del.quantity cm³/ : 1.8...2.2

100 s: (-)

Spread cm³ : 0.3

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 204.0...206.0

1000 : (201.0...209.0)

Spread cm³ : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.5

Testing:

1st rack travel in: 11.80

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1180...1210

4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 225
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack travel: 6.30
Speed rpm : 225
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 310...350

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.80...12.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in mm: 10.30...10.70
2nd pressure hPa : 470
Rack travel in mm: 12.20...12.30
3rd pressure hPa : 320
Rack travel in mm: 11.20...11.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1000
Del. quantity cm³/ : 197.0...205.0
1000 s: (195.0...207.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 142.0...146.0
1000 s: (140.0...148.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1045...1060

STARTING FUEL DELIVERY

J23

Speed rpm : 100
Del. quantity cm³/ : 130.0...170.0
1000 s: (-)
Rack travel in mm : 10.30...10.70

LOW IDLE

Speed rpm : 225
Rack travel in mm : 4.70...4.90

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO
diaphragm.

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Start of delivery - engine: 9° before
TDC

Firing sequence of engine:
1-5-3-6-2-4.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,1 r
 Edition : 26.02.93
 Replaces : 12.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 887
 Injection pump
 Pump designation : PE6P120A720RS7188
 EP type number : 0 412 626 832
 Governor
 Governor design. : RQV200...950PA725-7
 Governor no. : 0 421 813 803

Customer-spec. information
 Customer : SCANIA

Engine : DSC 11 23

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 1 417 413 025
 Inlet press., bar : 2.30
 Overflow
 quantity min. 1/h: 170...0
 Test nozzle holder
 assembly : 1 688 901 104
 Opening
 pressure, bar : 250...253
 Orifice plate
 diameter mm : 0,7
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 13.80...13.90
 Del.quantity cm³/ : 25.1...25.3
 100 s: (24.8...25.6)
 Spread cm³ : 0.8
 100 s: (1.2)

2nd speed rpm : 250.0
 Rack travel in mm : 4.6...5.0
 Del.quantity cm³/ : 1.3...1.9
 100 s: (-)
 Spread cm³ : 0.4
 100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
 travel mm : 1.20...1.60
 2nd speed rpm : 350
 travel mm : 2.40...3.00
 3rd speed rpm : 650
 travel mm : 4.50...5.10
 4th speed rpm : 1045
 travel mm : 8.40...8.60
 5th speed rpm : 1125
 travel mm : 9.30...9.70

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1150
 Rack travel in mm : 7.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 1500

Del.quantity : 251.0...253.0
1000 : (248.0...256.0)
Spread cm3 : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 110...118

Testing:
1st rack travel in: 12.80
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1110...1140
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 125
Minimum rack trave: 6.20
Speed rpm : 250
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 370...430

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 13.80...13.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.20...10.60
2nd pressure hPa : 440
Rack travel in m: 12.00...12.10
3rd pressure hPa : 270
Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 950
Del.quantity cm3/ : 228.0...236.0
1000 s: (226.0...238.0)
Aneroid pressure h: -

J25

Speed rpm : 500
Del.quantity cm3/ : 152.0...154.0
1000 s: (149.0...157.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...180.0
1000 s: (-)
Rack travel in mm : 10.20...10.60

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.60...4.80

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with RC80
diaphragm.

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 26.02.93
 Replaces : 12.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 910
 Injection pump
 Pump designation : PE6P120A320RS7138
 EP type number : 0 412 626 822
 Governor
 Governor design. : RQV200...1100PA712-5
 Governor no. : 0 421 813 951

Customer-spec. information
 Customer : SCANIA

Engine : DS9 08

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 2.30
 Overflow quantity min. 1/h: 170...0
 Test nozzle holder assembly : 1 688 901 104
 Opening pressure, bar : 250...253
 Orifice plate diameter mm : 0,7
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 13.10...13.20
 Del. quantity cm³/ : 17.9...18.1
 100 s: (17.6...18.4)
 Spread cm³ : 0.8
 100 s: (1.2)
 2nd speed rpm : 250.0
 Rack travel in mm : 4.5...4.9
 Del. quantity cm³/ : 1.3...1.9
 100 s: (-)
 Spread cm³ : 0.4
 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 225
 travel mm : 0.90...1.30
 2nd speed rpm : 350
 travel mm : 2.50...3.10
 3rd speed rpm : 650
 travel mm : 5.40...6.00
 4th speed rpm : 1145
 travel mm : 8.90...9.10
 5th speed rpm : 1280
 travel mm : 10.10...10.50

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1130
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 900

Del.quantity : 179.0...181.0
1000 : (176.0...184.0)
Spread cm3 : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 12.10
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1275...1305
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 150
Minimum rack trave: 5.80
Speed rpm : 250
Rack travel in mm : 4.50...4.70
Rack travel in mm : 2.00
Speed rpm : 310...370

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.10...13.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.30
2nd pressure hPa : 480
Rack travel in m: 12.30...12.40
3rd pressure hPa : 220
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1100
Del.quantity cm3/ : 162.0...170.0
1000 s: (160.0...172.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/ : 114.0...118.0
1000 s: (112.0...120.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.10
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...140.0
1000 s: (-)
Rack travel in mm : 9.90...10.30

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.50...4.70

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 26.02.93
 Replaces : 12.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 928
 Injection pump
 Pump designation : PE6P120A32ORS7138
 EP type number : 0 412 626 822
 Governor
 Governor design. : RQV350...1100PA795
 -12
 Governor no. : 0 421 813 914

Customer-spec. information
 Customer : SCANIA

Engine : DS9 05

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 019
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,8
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50
 : (4.35...4.55)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 12.20...12.30
 Del.quantity cm³/ : 16.5...16.7
 100 s: (16.2...17.0)
 Spread cm³ : 0.6
 100 s: (0.9)

2nd speed rpm : 350.0
 Rack travel in mm : 4.9...5.3
 Del.quantity cm³/ : 2.0...2.4
 100 s: (-)
 Spread cm³ : 0.3
 100 s: (0.6)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

2nd speed rpm : 350
 travel mm : 1.30...1.70
 3rd speed rpm : 650
 travel mm : 4.10...4.70
 4th speed rpm : 1150
 travel mm : 7.80...8.00
 5th speed rpm : 1260
 travel mm : 8.80...9.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1230
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 900
 Del.quantity : 165.0...167.0
 1000 : (162.0...170.0)
 Spread cm³ : 6.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 99...107

Testing:

1st rack travel in: 11.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 68...76

Testing:

Speed rpm : 250
Minimum rack travel: 7.50
Speed rpm : 350
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 370...430

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.20...12.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in in: 10.60...11.00
2nd pressure hPa : 360
Rack travel in m: 11.80...11.90
3rd pressure hPa : 240
Rack travel in m: 11.00...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1100
Del.quantity cm³/ : 163.0...171.0
1000 s: (161.0...173.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 125.0...129.0
1000 s: (122.0...132.0)

K01

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 270.0...320.0
1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.90...5.10

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA
 Edition : 26.02.93
 Replaces : 01.93
 Test oil : ISO-4113
 Combination no. : 0 402 646 938
 Injection pump
 Pump designation : PE6P120A72ORS71880
 EP type number : 0 412 626 846
 Governor
 Governor design. : RQ200/950PA745-3
 Governor no. : 0 421 801 579

Customer-spec. information
 Customer : SCANIA

Engine : DSC 11 21

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 2.30
 Overflow quantity min. 1/h: 170...0
 Test nozzle holder assembly : 1 688 901 104
 Opening pressure, bar : 250...253
 Orifice plate diameter mm : 0,7
 Test lines : 1 680 750 008
 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

K02

Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 12.70...12.80
 Del. quantity cm³/ : 21.9...22.1
 100 s: (21.6...22.4)
 Spread cm³ : 0.8
 100 s: (1.2)
 2nd speed rpm : 250.0
 Rack travel in mm : 4.6...5.0
 Del. quantity cm³/ : 1.5...1.9
 100 s: (-)
 Spread cm³ : 0.4
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -2
 Speed rpm : 600
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 1500
 Del. quantity : 219.0...221.0
 1000 : (216.0...224.0)
 Spread cm³ : 8.00
 1000 : (12.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 600
 Rack travel in mm : 16.5
 Testing:
 1st rack travel in: 11.70

Speed rpm : 995...1010
2nd rack travel in: 4.00
Speed rpm : 1085...1115
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 4.7

Testing:

Speed rpm : 125
Minimum rack travel: 6.20
Speed rpm : 250
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 330...370

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 12.70...12.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.20...10.60
2nd pressure hPa : 440
Rack travel in m: 12.00...12.10
3rd pressure hPa : 270
Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
Speed rpm : 950
Del.quantity cm³/ : 202.0...210.0
1000 s: (200.0...212.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 151.0...155.0
1000 s: (149.0...157.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 995...1010

K03

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 160.0...200.0
1000 s: (-)
Rack travel in mm : 10.20...10.60

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.60...4.80

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a 8
 Edition : 20.04.93
 Replaces : 30.9.88
 Test oil : ISO-4113
 Combination no. : 9 400 230 111
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 -4
 EP type number : 9 410 230 030
 Governor
 Governor design. : RSV400...1100AOC2190
 -23R
 Governor no. : 9 420 234 174

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT830

1st version kW : 134.2
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

KD4

Test pressure, bar: 27...29
 Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 11.20...11.30
 Del. quantity cm³/ : 10.1...10.3
 100 s: (9.9...10.5)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 400
 Rack travel in mm : 7.4...7.6
 Del. quantity cm³/ : 2.8...3.2
 100 s: (2.5...3.4)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 101.0...103.0
 1000 : (99.0...105.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 49...57

Testing:
1st rack travel in: 10.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1210...1240
3rd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 29...37
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 7.0

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 7.40...7.60
Rack travel in mm : 2.00
Speed rpm : 520...580

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.20...11.30
2nd speed rpm : 750
Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del. quantity cm³/ : 110.5...114.5
1000 s : (108.5...116.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s : (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400

K05

Rack travel in mm : 7.40...7.60
Del. quantity cm³/ : 28.0...32.0
1000 s : (25.5...34.5)
Spread cm³ : 3.50
1000 s : (5.50)

Remarks: : C.D.C. # 3911545

Adjustment without torque-control
spring retainer with 0.5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 5,9 w 2
 Edition : 13.05.93
 Replaces : 21.09.92
 Test oil : ISO-4113

Combination no. : 0 402 736 811

Injection pump
 Pump designation : PES6P110A120RS7213
 EP type number : 0 412 716 804
 Governor
 Governor design. : RQV400...1250PA964
 -3K
 Governor no. : 0 421 815 255

Customer-spec. information
 Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 147.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 115...125

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45
 : (4.30...4.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 14.80...14.90

Del. quantity cm³/ : 15.8...16.0

100 s: (15.5...16.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 5.5...5.7

Del. quantity cm³/ : 3.2...3.8

100 s: (3.0...4.0)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400
 travel mm : 1.60...1.80

2nd speed rpm : 600
 travel mm : 2.80...3.30

3rd speed rpm : 1300
 travel mm : 7.20...7.40

4th speed rpm : 1500
 travel mm : 8.90...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 1200
 Del. quantity : 158.5...160.5
 1000 : (155.5...163.5)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 56...64

Testing:
1st rack travel in: 13.80
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1460...1490
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20

Testing:
Speed rpm : 275
Minimum rack travel: 7.20
Speed rpm : 400
Rack travel in mm : 5.50...5.70

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 14.80...14.90
2nd speed rpm : 800
Rack travel in m: 13.20...13.40

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1250
Pressure hPa : 1200
Rack travel mm : 14.80...14.90

Measurement
Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 8.20...8.60
2nd pressure hPa : 410
Rack travel in m: 10.60...10.70
3rd pressure hPa : 755
Rack travel in m: 13.70...14.10

START CUT-OUT

Speed 1/min : 290 (300)

K07

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 800
Del. quantity cm³/ : 156.5...162.5
1000 s: (153.5...165.5)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del. quantity cm³/ : 90.0...94.0
1000 s: (88.0...96.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.80
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 11.90...12.90

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del. quantity cm³/ : 32.0...38.0
1000 s: (30.0...40.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

Start-of-delivery mark 6° cam angle
after start of delivery cyl. 1

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 04.06.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1400R173
Type number : 0 460 426 038
Customer Part-No. : 390 7667

Customer-specific information
Customer : CDC

Engine : 6 BT -590

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): ±0.02(0.04)

Start of delivery block
Piston stroke mm: 1.6
mm: ±0.02(0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100

K08

Charge press. hPa: 750
Setting value mm: 2.10...2.50
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 750
Setting value bar: 4.30...4.90
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1100
Charge press. hPa: 750
Del. quantity cm3/
1000S.: 86.00...87.00

Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 73.50...74.50

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 20.00...26.00

Shutoff
electromagnet Volt: 24
Del. quantity cm3/
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1600
Charge press hPa: 750
Del. quantity cm3/
1000S.: 32.00...38.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 97.00...137.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1400
Charge press hPa: 750
TD travel mm: 2.90...3.70
mm: (2.60...4.00)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1100
Charge press hPa: 750
TD travel mm: 2.10...2.50
mm: (1.60...3.00)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 900
Charge press hPa: 750
TD travel mm: 0.40...1.20
mm: (0.10...1.50)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 750
Supply-pump pressure bar: 2.00...2.60

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 1100
Charge press. hPa: 750
Supply-pump pressure bar: 4.30...4.90

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1400
Charge press. hPa: 750
Supply-pump pressure bar: 5.60...6.20

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 1400
Charge press. hPa: 750
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

K09

1st speed 1/min: 750*
Charge-air pressure-setting point hPa: 300
LDA-stroke mm: 4.5
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 80.00...81.00
(76.50...84.50)

2nd speed 1/min: 1750
Charge press. hPa: 750
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 0.00...3.00
(0.00...3.00)

5th speed 1/min: 1600
Charge press. hPa: 750
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 32.00...38.00
(29.00...41.00)

9th speed 1/min: 1400
Charge press. hPa: 750
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 79.50...82.50
(78.00...84.00)

10th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 82.50...85.50
(80.50...87.50)

12th speed 1/min: 1100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 86.00...87.00
(83.50...89.50)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 73.50...74.50
(70.00...78.00)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1400
Del. quantity cm³/1000s.: 0.00...3.00
(0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 375

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 20.00...26.00
1000S.: (18.00...28.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 450

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 97.00...137.00
1000S.: (97.00...137.00)

2nd speed 1/min: 200

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 45.00...85.00
1000S.: (45.00...85.00)

4th speed 1/min: 100

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 97.00...137.00
1000S.: (97.00...137.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.0...5.4
MS mm: 1.3...1.7
SVS max. mm: 2.4
LDA stroke mm: 4.5

Remarks:

:
Operate control lever after each
manifold-pressure compensator pressure
change.

K10

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 04.06.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1100R159-2
Type number : 0 460 426 042
Customer Part-No. : 3907664

Customer-specific information
Customer : CDC

Engine : 6BT-5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 016

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): +-0.02(0.04)

Start of delivery block
Piston stroke mm: 1.5
mm: +-0.02(0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 750

K11

Setting value mm: 3.10...3.50
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750
Setting value bar: 3.60...4.20
Shutoff
electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 900
Del. quantity cm3/
1000S.: 82.00...83.00
Shutoff
electromagnet Volt: 24
Dispersion cm3/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 22.00...28.00
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1220
Del. quantity cm3/
1000S.: 34.00...40.00
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 100.00...140.00
mind 1000S.: 100.0
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 5.10...5.90
mm: (4.80...6.20)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 750
TD travel mm: 3.10...3.50
mm: (2.60...4.00)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 500
TD travel mm: 1.20...2.00
mm: (0.90...2.30)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2.60...3.20
Shutoff
electromagnet Volt: 24
2nd speed 1/min: 750
Supply-pump
pressure bar: 3.60...4.20
Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1100
Supply-pump
pressure bar: 5.00...5.60
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 24
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1100
Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1280
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
5th speed 1/min: 1220
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 34.00...40.00
1000S.: (31.00...43.00)
9th speed 1/min: 1100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 75.00...78.00
1000S.: (73.50...79.50)
12th speed 1/min: 900
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 82.00...83.00
1000S.: (79.50...85.50)
20th speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 77.00...85.00
1000S.: (75.00...87.00)

Mech. shutoff:
Mech. Abst \ddot{u} llung:

1st speed 1/min: 1100
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 22.00...28.00
1000S.: (20.00...30.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

4th speed 1/min: 450
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 100.00...150.00
1000S.: (100.00...150.00)

2nd speed 1/min: 200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 45.00...85.00
1000S.: (45.00...85.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 100.00...140.00
1000S.: (100.00...140.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.2...5.6
MS mm: 1.5...1.9
SVS max. mm: 1.5

Remarks:

⋮

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 04.06.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1150R159-3
Type number : 0 460 426 043
Customer Part-No. : 3907663

Customer-specific information
Customer : CDC

Engine : 6BT-5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 016

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): ±0.02(0.04)

Start of delivery block
Piston stroke mm: 1.5
mm: ±0.02(0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900

K14

Setting value mm: 4.30...4.70
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 900
Setting value bar: 4.40...5.00
Shutoff
electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 900
Del. quantity cm³/
1000S.: 81.50...82.50
Shutoff
electromagnet Volt: 24
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm³/
1000S.: 18.50...24.50
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1230
Del. quantity cm³/
1000S.: 30.00...36.00
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 100.00...140.00
mind 1000S.: 100.0
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1150
TD travel mm: 5.60...6.40
mm: (5.30...6.70)
Shutoff
electromagnet Volt: 24
3rd speed 1/min: 900
TD travel mm: 4.30...4.70
mm: (3.80...5.20)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 500
TD travel mm: 1.20...2.00
mm: (0.90...2.30)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump pressure bar: 2.70...3.30
Shutoff
electromagnet Volt: 24
2nd speed 1/min: 900
Supply-pump pressure bar: 4.40...5.00
Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1150
Supply-pump pressure bar: 5.40...6.00
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 41.70...83.40
cm³/10s: (26.70...98.40)
2nd speed 1/min: 1150
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 55.60...139.00
cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1290
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 0.00...3.00
cm³/1000s.: (0.00...3.00)
5th speed 1/min: 1230
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 30.00...36.00
cm³/1000s.: (27.00...39.00)
9th speed 1/min: 1150
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 74.00...77.00
cm³/1000s.: (72.50...78.50)
12th speed 1/min: 900
Shutoff
electromagnet Volt: 24

Del. quantity cm³/1000s.: 81.50...82.50
cm³/1000s.: (79.00...85.00)
20th speed 1/min: 500

Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 78.50...86.50
cm³/1000s.: (76.50...88.50)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1250
Del. quantity cm³/1000s.: 0.00...3.00
cm³/1000s.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 360
Del. quantity cm³/1000s.: 0.00...3.00
cm³/1000s.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 18.50...24.50
cm³/1000s.: (16.50...26.50)

Dispersion cm³/1000s.: 5.5
cm³/1000s.: (7.0)

4th speed 1/min: 450
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 0.00...3.00
cm³/1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 100.00...150.00
cm³/1000s.: (100.00...150.00)

2nd speed 1/min: 200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 45.00...85.00
cm³/1000s.: (40.00...80.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 100.00...140.00
cm³/1000s.: (100.00...140.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.2...5.6
MS	mm: 1.5...1.9
SVS max.	mm: 1.5

Remarks:

⋮



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 04.06.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1050R173-6A
Type number : 0 460 426 087
Customer Part-No. : 3910792

Customer-specific information
Customer : CUMMINS

Engine : 6 BTA-590

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): ±0.02(0.04)

Start of delivery block
Piston stroke mm: 1.85
mm: ±0.02(0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 750

K17

Charge press. hPa: 1000
Setting value mm: 1.40...1.80
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750
Charge press hPa: 1000
Setting value bar: 3.30...3.90
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 82.50...83.50

Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 68.50...69.50

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 8.00...14.00

Shutoff
electromagnet Volt: 24
Del. quantity cm3/
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1100
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 59.00...65.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 60.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1050
Charge press hPa: 1000
TD travel mm: 2.10...2.90
mm: (1.80...3.20)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 1.40...1.80
mm: (0.90...2.30)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 600
Charge press hPa: 1000
TD travel mm: 0.50...1.30
mm: (0.20...1.60)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 2.30...2.90

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump pressure bar: 3.30...3.90

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1050
Charge press. hPa: 1000
Supply-pump pressure bar: 4.50...5.10

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 1050
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

K18

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 400
LDA-stroke mm: 3.4
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s: 78.50...79.50
(74.50...83.50)

2nd speed 1/min: 1180
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s: 0.00...3.00
(0.00...3.00)

4th speed 1/min: 1120
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s: 15.00...55.00
(15.00...55.00)

5th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s: 59.00...65.00
(56.00...68.00)

9th speed 1/min: 1050
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s: 77.50...80.50
(76.00...82.00)

10th speed 1/min: 900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s: 78.00...81.00
(76.50...82.50)

12th speed 1/min: 750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s: 82.50...83.50
(80.00...86.00)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s: 68.50...69.50
(64.50...73.50)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1050
Charge press. hPa: 1000
Del. quantity cm³/1000s: 0.00...3.00
(0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 8.00...14.00
1000S.: (6.00...16.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 80.00...130.00
1000S.: (80.00...130.00)

2nd speed 1/min: 440
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...80.00
1000S.: (60.00...80.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.2...5.6
MS mm: -
SVS max. mm: 2.3
LDA stroke mm: 3.4

K19

Remarks:

⋮
Operate control lever after each
manifold-pressure compensator pressure
change.

* Correction at adjusting nut

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 03.06.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1100R367-2
Type number : 0 460 426 165
Customer Part-No. : 391 6939

Customer-specific information
Customer : CDC

Engine : 6BTA5.9 IND.

Power KW: 105
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder assembly : 1 688 901 027

Opening Pressure bar: 250.00...253.00

Perforated-plate diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery Prestroke mm: 0.3
(from BDC): ±0.02(0.04)

Start of delivery block Piston stroke mm: 1.5
mm: ±0.02(0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

K20

Timing-device travel

Speed 1/min: 900
Setting value mm: 2.00...2.40
Shutoff electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 900
Setting value bar: 4.30...4.90
Shutoff electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 900
Del. quantity cm3/ 1000S.: 67.00...68.00

Shutoff electromagnet Volt: 12
Dispersion cm3/ 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/ 1000S.: 8.00...14.00

Shutoff electromagnet Volt: 12
Del. quantity cm3/ 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1150
Del. quantity cm3/ 1000S.: 52.50...58.50

Shutoff electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/ 1000S.: 60.00...110.00
mind 1000S.: 60.00

Shutoff electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 2.70...3.50
mm: (2.40...3.80)

Shutoff electromagnet Volt: 12

3rd speed 1/min: 900
 TD travel mm: 2.00...2.40
 mm: (1.50...2.90)
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 700
 TD travel mm: 0.70...1.50
 mm: (0.40...1.80)
 Shutoff
 electromagnet Volt: 12
 Supply-pump pressure characteristic:
 1st speed 1/min: 500
 Supply-pump pressure bar: 2.60...3.20
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 900
 Supply-pump pressure bar: 4.30...4.90
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1100
 Supply-pump pressure bar: 5.10...5.70
 Shutoff
 electromagnet Volt: 12
 Overflow quantity at overflow valve:
 1st speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 41.70...83.40
 (26.70...98.40)
 2nd speed 1/min: 1100
 Shutoff
 electromagnet Volt: 12
 Overflow quantity : 55.60...139.00
 (40.60...154.00)
 Delivery-quant. and breakaway char.:
 2nd speed 1/min: 1220
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 3rd speed 1/min: 1180
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 10.00...50.00
 1000S.: (10.00...50.00)
 Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 1150
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 52.50...58.50
 1000S.: (49.50...61.50)
 9th speed 1/min: 1100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 63.50...66.50
 1000S.: (62.00...68.00)
 10th speed 1/min: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 68.00...71.00
 1000S.: (66.00...73.00)
 Shutoff
 electromagnet Volt: 12
 12th speed 1/min: 900
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 67.00...68.00
 1000S.: (64.50...70.50)
 20th speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 67.50...75.50
 1000S.: (65.50...77.50)
 Mech. shutoff:
 Mech. Abststellung:
 1st speed 1/min: 1250
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: 12
 Electr. shutoff:
 1st speed 1/min: 375
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -
 Idle delivery:
 1st speed 1/min: 375
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 8.00...14.00
 1000S.: (6.00...16.00)
 Dispersion cm³/: 5.5
 1000S.: (7.0)
 2nd speed 1/min: 520
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.50...4.50
 1000S.: (0.50...4.50)
 Shutoff
 electromagnet Volt: 12
 Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 65.00...125.00
1000S.: (65.00...125.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...60.00
1000S.: (20.00...60.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.4...5.6
MS mm: 1.1...1.4
SVS max. mm: 1.1

Remarks:

:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC
Edition : 04.06.93
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1250R320-3
Type number : 0 460 426 232
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6 BT- 590A

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 027

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.4
mm: ±0.02(0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

K23

Speed 1/min: 1100
Charge press. hPa: 1200
Setting value mm: 1.30...1.70
AFB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1200
Setting value bar: 6.80...7.40
KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1100
Charge press. hPa: 1200
Del. quantity cm3/
1000S.: 73.00...74.00
KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24
Dispersion cm3/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 51.00...52.00
KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24
Dispersion cm3/: 9.0
1000S.: (9.0)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 5.50...9.50
KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1340
Charge press hPa: 1200

Del. quantity cm³/
1000S.: 52.50...58.50

KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³: 70.00...130.00
mind 1000S.: 70.00

KSB/AFB
Valve Volt: 24
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
Charge press hPa: 1200
TD travel mm: 2.20...3.00
mm: (1.90...3.30)

KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1100
Charge press hPa: 1200
TD travel mm: 1.30...1.70
mm: (0.80...2.20)

KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24
4th speed 1/min: 1000
Charge press hPa: 1200
TD travel mm: 0.50...1.30
mm: (0.20...1.60)

KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24
8th speed 1/min: 450
TD travel mm: 3.00...4.00 *
mm: -

KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump
pressure bar: 4.10...4.70

K24

KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump
pressure bar: 6.80...7.40

KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1250
Charge press. hPa: 1200
Supply-pump
pressure bar: 7.50...8.10
KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1250
Charge press. hPa: 1200

KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 700
LDA-stroke mm: 6.8
KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24
Del. quantity cm³: 68.00...69.00
1000S.: (64.50...72.50)

2nd speed 1/min: 1550
Charge press. hPa: 1200
KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 3rd speed 1/min: 1400
 Charge press. hPa: 1200
 KSB/AFB
 valve Volt: 24
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 15.00...55.00
 1000S.: (15.00...55.00)
 5th speed 1/min: 1340
 Charge press. hPa: 1200
 KSB/AFB
 valve Volt: 24
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 52.50...58.50
 1000S.: (49.50...61.50)
 9th speed 1/min: 1250
 Charge press. hPa: 1200
 KSB/AFB
 valve Volt: 24
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 70.50...73.50
 1000S.: (69.00...75.00)
 10th speed 1/min: 750
 Charge press. hPa: 1200
 KSB/AFB
 valve Volt: 24
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 69.00...74.00
 1000S.: (67.00...76.00)
 12th speed 1/min: 1100
 Charge press. hPa: 1200
 KSB/AFB
 valve Volt: 24
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 73.00...74.00
 1000S.: (70.50...76.50)
 18th speed 1/min: 500
 Charge press. hPa: -
 KSB/AFB
 valve Volt: 24
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 51.00...52.00
 1000S.: (47.50...55.50)

Mech. shutoff:
 Mech. Abstimmung:

1st speed 1/min: 1250
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: 24

KSB/AFB
 valve Volt: 24

Electr. shutoff:

1st speed 1/min: 350
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
 KSB/AFB
 valve Volt: 24
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 5.50...9.50
 1000S.: (2.50...12.50)

Dispersion cm³/: 5.5
 1000S.: (7.0)

2nd speed 1/min: 450
 KSB/AFB
 valve Volt: 24
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...4.00
 1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
 KSB/AFB
 valve Volt: 24
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 70.00...130.00
 1000S.: (70.00...130.00)

2nd speed 1/min: 250
 KSB/AFB
 valve Volt: 24
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 30.00...50.00
 1000S.: (30.00...50.00)

4th speed 1/min: 100
 KSB/AFB
 valve Volt: 24
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 70.00...130.00
 1000S.: (70.00...130.00)

Shutoff electromagnet:

Cut-in
 min voltage : 20.0

Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: K-OT
MS	mm: -
SVS max.	mm: 2.3
LDA stroke	mm: 6.8

Remarks:

Operate control lever after each 97 manifold-pressure compensator pressure change.

* Correction at adjusting nut

* Unscrew KSB ball valve 2 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 17.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 846 513
 Injection pump
 Pump designation : PES6A95D410LS2542Z
 EP type number : 0 410 896 935
 Governor
 Governor design. : RQ250/1100AB1137-5L
 Governor no. : 0 420 200 087

Customer-spec. information
 Customer : MAN

Engine : D2566MFO/MFOR

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000
 Inlet press., bar : 1.00
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 1.50...1.60
 : (1.45...1.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 10.50...10.60
 Del. quantity cm³/ : 10.0...10.2
 100 s: (9.8...10.4)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 250.0
 Rack travel in mm : 5.9...6.1
 Del. quantity cm³/ : 0.9...1.5
 100 s: (0.6...1.7)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 550
 Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 100.5...102.5
 1000 : (98.5...104.5)
 Spread cm³ : 3.00
 1000 : (6.00)

RATED SPEED

1st version
 Setting point:
 Speed rpm : 550
 Rack travel in mm : 16.0

Testing:
 1st rack travel in: 9.50
 Speed rpm : 1145...1160
 2nd rack travel in: 4.00
 Speed rpm : 1190...1220

LOW IDLE 1

Setting point w/out bumper spring
 Speed rpm : 250

Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.50...10.60
2nd speed rpm : 600
Rack travel in m: 10.90...11.00
3rd speed rpm : 750
Rack travel in m: 10.70...10.90
4th speed rpm : 845
Rack travel in m: 10.50...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm³/ : 87.5...90.5
1000 s: (85.5...92.5)
Speed rpm : 500
Del.quantity cm³/ : 0.0...93.5
1000 s: (0.0...95.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 125.0...135.0
1000 s: (122.0...138.0)
Rack travel in mm : 19.00...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,7 b 1
 Edition : 15.06.93
 Replaces : 01.91
 Test oil : ISO-4113
 Combination no. : 0 400 846 590
 Injection pump
 Pump designation : PES6A95D329RS2779
 EP type number : 0 410 896 903
 Governor
 Governor design. : RQV350...1200AB1252
 -1R
 Governor no. : 0 420 213 124
 Customer-spec. information
 Customer : NAVISTAR
 Engine : DT 466
 1st version kw : 138.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 2 417 413 038
 Inlet press., bar : 2.80
 Test nozzle holder
 assembly : 1 688 901 110
 Opening
 pressure, bar : 250...253
 Orifice plate
 diameter mm : 0,5
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

L01

Prestroke mm : 2.65...2.75
 : (2.60...2.80)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200
 Rack travel in mm : 13.00...13.10
 Del. quantity cm³/ : 9.4...9.6
 100 s: (9.2...9.8)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 5.9...6.1
 Del. quantity cm³/ : 1.7...2.1
 100 s: (1.5...2.3)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400
 travel mm : 9.30...9.70
 2nd speed rpm : 1250
 travel mm : 7.90...8.10
 3rd speed rpm : 550
 travel mm : 3.10...3.70
 4th speed rpm : 350
 travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Aneroid pressure h: 900
 Del. quantity : 94.5...96.5
 1000 : (92.5...98.5)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:
1st rack travel in: 12.00
Speed rpm : 1285...1315
2nd rack travel in: 4.00
Speed rpm : 1425...1435
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 13...21

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 350...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.00...13.10

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.40...8.60
2nd pressure hPa : 175
Rack travel in m: 9.60...9.70
3rd pressure hPa : 430
Rack travel in m: 11.70...12.10

START CUT-OUT

Speed 1/min : 285 (295)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 50.0...54.0
1000 s: (48.0...56.0)

BREAKAWAY

LO2

1st version
1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 1285...1315

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 17.0...21.0
1000 s: (15.0...23.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks: : NAVISTAR #1817004C91

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Start-of-delivery blocking at start of
delivery of cylinder no. 1.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD
 Edition : 26.04.91
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 864 091
 Injection pump
 Pump designation : PES4A85D410/3RS2799-
 1
 EP type number : 0 410 884 942
 Governor
 Governor design. : RSV325...900A7C2239
 -5
 Governor no. : 0 420 232 564

Customer-spec. information
 Customer : KHD

Engine : BF4L913

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 000
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 2.45...2.55
 : (2.40...2.50)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 720
 Rack travel in mm : 12.10...12.20
 Del. quantity cm³/ : 8.0...8.1
 100 s: (7.8...8.3)
 Spread cm³ : 0.3
 100 s: (0.5)
 2nd speed rpm : 325.0
 Rack travel in mm : 7.4...7.6
 Del. quantity cm³/ : 1.0...1.6
 100 s: (0.8...1.8)
 Spread cm³ : 0.2
 100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 720
 Del. quantity : 80.5...81.5
 1000 : (78.5...83.5)
 Spread cm³ : 5.00
 1000 : (5.00)

RATED SPEED

1st version
 Control lever
 position degrees: 85...93

Testing:
 1st rack travel in: 11.10
 Speed rpm : 750...755
 2nd rack travel in: 4.00
 Speed rpm : 764...779
 4th rack travel in: 920
 Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
 position degrees: 61...69
 Setting point w/out bumper spring

Speed rpm : 325
Rack travel in mm : 6.0
Speed rpm : 325
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 310...370

SET IDLE AUXILIARY SPRING
Rack travel in mm : 2.00

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del. quantity cm³/ : 70.0...72.0
1000 s: (67.5...74.5)
Spread cm³ : 3.00
1000 s: (5.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)
Rack travel in mm : 17.80...18.20

Remarks:
:

APPLICATION

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 113
 Edition : 15.06.93
 Replaces : 07.91
 Test oil : ISO-4113
 Combination no. : 0 400 866 149
 Injection pump
 Pump designation : PES6A100D320/3RS2763
 EP type number : 0 410 806 006
 Governor
 Governor design. : RSV375...1000ADC2190
 -44R
 Governor no. : 0 420 233 250

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CTA

1st version kW : 166.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

L05

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 12.90...13.00
 Del.quantity cm³/ : 13.3...13.5
 100 s: (13.1...13.7)
 Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 375.0
 Rack travel in mm : 5.3...5.5
 Del.quantity cm³/ : 1.7...2.1
 100 s: (1.4...2.3)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Del.quantity : 133.5...135.5
 1000 : (131.5...137.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 37...45

Testing:
 1st rack travel in: 11.90
 Speed rpm : 1050...1060
 2nd rack travel in: 4.00

Speed rpm : 1115...1145
3rd rack travel in: 4.00
Speed rpm : 1120...1150
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 375
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 375
Rack travel in mm : 5.30...5.50

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 12.90...13.00
2nd speed rpm : 750
Rack travel in m: 13.60...13.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 146.0...150.0
1000 s: (144.0...152.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 375
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ : 17.0...21.0
1000 s: (14.5...23.5)
Spread cm³ : 6.00
1000 s: (8.00)

LD6

Remarks:

: C.D.C. # 3915570

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 180
 Injection pump
 Pump designation : PES6A1000320/3RS2691
 -4
 EP type number : 9 410 230 030
 Governor
 Governor design. : RSV450...1100A0C2190
 -58R
 Governor no. : 0 420 233 297

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT830

1st version kW : 117.1
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

L07

Test pressure, bar: 27...29
 Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 10.80...10.90
 Del. quantity cm³/ : 9.8...10.0
 100 s: (9.6...10.2)
 Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 450.0
 Rack travel in mm : 5.9...6.1
 Del. quantity cm³/ : 1.8...2.2
 100 s: (1.5...2.4)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 98.0...100.0
 1000 : (96.0...102.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 56...64

Testing:

1st rack travel in: 9.80
 Speed rpm : 1165...1175
 2nd rack travel in: 4.90
 Speed rpm : 1270...1280
 3rd rack travel in: 4.00
 Speed rpm : 1265...1295
 4th rack travel in: 1350
 Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
 position degrees: 36...44
 Setting point w/out bumper spring
 Speed rpm : 450
 Rack travel in mm : 5.5

Testing:

Speed rpm : 100
 Minimum rack travel: 19.00
 Speed rpm : 450
 Rack travel in mm : 5.90...6.10

TORQUE CONTROL

Torque control curve - 1st version
 1st speed rpm : 1100
 Rack travel in m: 10.80...10.90
 2nd speed rpm : 750
 Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
 Del.quantity cm³/ : 102.0...106.0
 1000 s: (100.0...108.0)

BREAKAWAY

1st version

1mm rack travel less than
 full load rack tr: 9.80
 Speed rpm : 1165...1175

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm³/ : 145.0...165.0
 1000 s: (140.0...170.0)
 Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 450
 Rack travel in mm : 5.90...6.10

L08

Del.quantity cm³/ : 18.0...22.0
 1000 s: (15.5...24.5)
 Spread cm³ : 6.00
 1000 s: (8.00)

Remarks:

: C.D.C. # 3922144
 Adjustment without torque-control
 spring retainer with 0,5 mm less
 control-rod travel. Increase in
 full-load delivery with torque-control
 spring retainer.

Start-of-delivery mark 11° cam angle
 after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 181
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 -4
 EP type number : 9 410 230 030
 Governor
 Governor design. : RSV450...1100AOC2190
 -59R
 Governor no. : 0 420 233 298

Customer-spec. information

Customer : C.D.C.

Engine : 6CT830

1st version kw : 140.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

L09

Test pressure, bar: 27...29
 Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 11.80...11.90
 Del. quantity cm³/ : 11.2...11.4
 100 s : (11.0...11.6)
 Spread cm³ : 0.4
 100 s : (0.6)

2nd speed rpm : 450.0
 Rack travel in mm : 5.7...5.9
 Del. quantity cm³/ : 1.6...2.0
 100 s : (1.4...2.3)
 Spread cm³ : 0.6
 100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 112.0...114.0
 1000 : (110.0...116.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 49...57

Testing:

1st rack travel in: 10.80
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1235...1245
3rd rack travel in: 4.00
Speed rpm : 1235...1265
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 31...39
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.80...11.90
2nd speed rpm : 750
Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 123.5...127.5
1000 s: (121.5...129.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 10.80
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (125.0...155.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.70...5.90

L10

Del.quantity cm3/ : 16.5...20.5
1000 s: (14.0...23.0)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3922145
Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 182
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 -4
 EP type number : 9 410 230 030
 Governor
 Governor design. : RSV450...1100AOC2190
 -60R
 Governor no. : 0 420 233 299

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT830

1st version kw : 157.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

L11

Test pressure, bar: 27...29
 Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 12.90...13.00
 Del.quantity cm3/ : 12.6...12.8
 100 s: (12.4...13.0)
 Spread cm3 : 0.4
 100 s: (0.6)

2nd speed rpm : 450.0
 Rack travel in mm : 5.7...5.9
 Del.quantity cm3/ : 1.6...2.0
 100 s: (1.4...2.3)
 Spread cm3 : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 126.5...128.5
 1000 : (124.5...130.5)
 Spread cm3 : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 46...54

Testing:
1st rack travel in: 11.90
Speed rpm : 1150...1160
2nd rack travel in: 4.00
Speed rpm : 1250...1260
3rd rack travel in: 4.00
Speed rpm : 1250...1280
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.3

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.90...13.00
2nd speed rpm : 750
Rack travel in m: 13.70...13.90

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 142.5...146.5
1000 s: (140.5...148.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.90
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (125.0...155.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.70...5.90

Del.quantity cm³/ : 16.5...20.5
1000 s: (14.0...23.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3922146
Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 183

Injection pump
 Pump designation : PES6A100D320/3RS2763
 EP type number : 0 410 806 006
 Governor
 Governor design. : RSV430...1100ADC2190
 -61R
 Governor no. : 0 420 233 300

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT 8.3

1st version kW : 111.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

L13

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.70...9.80

Del. quantity cm³/ : 8.8...9.0

100 s: (8.6...9.2)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 4.9...5.1

Del. quantity cm³/ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 88.0...90.0

1000 : (86.0...92.0)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 8.70
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1230...1240
3rd rack travel in: 4.00
Speed rpm : 1225...1255
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 35...43
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 4.90...5.10

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 9.70...9.80
2nd speed rpm : 750
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 96.5...100.5
1000 s: (94.5...102.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 4.90...5.10
Del. quantity cm³/ : 12.0...16.0
1000 s: (9.5...18.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921100

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 184
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV425...900A4C2213
 -4R
 Governor no. : 0 420 233 325

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3

1st version kw : 154.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

L15

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 830
 Rack travel in mm : 13.40...13.50
 Del. quantity cm³/ : 13.8...14.0
 100 s : (13.6...14.2)
 Spread cm³ : 0.4
 100 s : (0.6)

2nd speed rpm : 425.0
 Rack travel in mm : 5.1...5.3
 Del. quantity cm³/ : 1.5...1.9
 100 s : (1.2...2.1)
 Spread cm³ : 0.6
 100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 830
 Del. quantity : 138.5...140.5
 1000 : (136.5...142.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 48...56

Testing:

1st rack travel in: 12.40
Speed rpm : 925...935
2nd rack travel in: 4.00
Speed rpm : 970...980
3rd rack travel in: 4.00
Speed rpm : 960...990
4th rack travel in: 1030
Speed rpm : 0.30...1.40

Generator

LOW IDLE 1
Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 4.7

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.10...5.30

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.10...5.30
Del. quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921160

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

APPLICATION

L16

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 185
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV500...1250AOC2190
 -62R
 Governor no. : 0 420 233 301

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CTA-I

1st version kw : 164.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

L17

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250
 Rack travel in mm : 11.90...12.00
 Del.quantity cm³/ : 11.3...11.5
 100 s: (11.1...11.7)
 Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 500.0
 Rack travel in mm : 5.6...5.8
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.4...2.3)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Del.quantity : 113.5...115.5
 1000 : (111.5...117.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 41...49

Testing:

1st rack travel in: 10.90
Speed rpm : 1305...1315
2nd rack travel in: 4.00
Speed rpm : 1355...1365
3rd rack travel in: 4.00
Speed rpm : 1345...1375
4th rack travel in: 1450
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 500
Rack travel in mm : 5.60...5.80

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1305...1315

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 16.5...20.5
1000 s: (14.0...23.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921096

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery blocking 12° after
start of delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 186
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100A0C2190
 -63R
 Governor no. : 0 420 233 302

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 156.6
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 5.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.30...12.40

Del. quantity cm³/ : 12.2...12.4

100 s: (12.0...12.6)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.6...5.8

Del. quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 122.5...124.5

1000 : (120.5...126.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 11.30
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1255...1265
3rd rack travel in: 4.00
Speed rpm : 1245...1275
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 28...36
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921099

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 187

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV500...1050AOC2190
 -64R

Governer no. : 0 420 233 303

Customer-spec. information
 Customer : C.D.C.

Engine : 6-CT-I 8.3 ltr

1st version kW : 123.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

L21

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 9.9...10.1

100 s : (9.7...10.3)

Spread cm³ : 0.4

100 s : (0.6)

2nd speed rpm : 500.0
 Rack travel in mm : 5.3...5.5
 Del.quantity cm³/ : 1.6...2.0
 100 s : (1.3...2.2)
 Spread cm³ : 0.6
 100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del.quantity : 99.5...101.5
 1000 : (97.5...103.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 50...58

Testing:

1st rack travel in: 9.70
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1190...1200
3rd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 31...39
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 4.9

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 500
Rack travel in mm : 5.30...5.50

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 10.70...10.80
2nd speed rpm : 750
Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 120.5...124.5
1000 s: (118.5...126.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 500
Rack travel in mm : 5.30...5.50
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)

L22

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3911116

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 188
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV425...750A4C2213
 -5R
 Governor no. : 0 420 233 326
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6CT- 8.3 L
 1st version kW : 135.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 017
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

L23

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750
 Rack travel in mm : 14.00...14.10
 Del. quantity cm³/ : 14.2...14.4
 100 s: (14.0...14.6)
 Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 425.0
 Rack travel in mm : 6.0...6.2
 Del. quantity cm³/ : 1.8...2.2
 100 s: (1.5...2.4)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 750
 Del. quantity : 142.5...144.5
 1000 : (140.5...146.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 36...44

Testing:

1st rack travel in: 13.00
Speed rpm : 795...805
2nd rack travel in: 4.00
Speed rpm : 835...845
3rd rack travel in: 4.00
Speed rpm : 830...860
4th rack travel in: 900
Speed rpm : 0.30...1.40

Generator

LOW IDLE 1
Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.6

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 6.00...6.20

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 795...805

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 6.00...6.20
Del.quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921152

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

Limit shutoff stop screw to 1.0 mm.

APPLICATION

L24

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Continuation no. : 0 400 866 189
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -65R
 Governor no. : 0 420 233 304
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 CTA 8.3ltr
 1st version kW : 174.5
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

L25

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 12.70...12.80
 Del. quantity cm³/ : 12.8...13.0
 100 s: (12.6...13.2)
 Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.5...5.7
 Del. quantity cm³/ : 1.4...1.8
 100 s: (1.2...2.1)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 128.0...130.0
 1000 : (126.0...132.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 41...49

Testing:

1st rack travel in: 11.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1200...1230
3rd rack travel in: 4.00
Speed rpm : 1205...1235
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 20...28
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.50...5.70

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del.quantity cm3/ : 14.5...18.5
1000 s: (12.0...21.0)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921145

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 190

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1250A0C2216
 -5R
 Governor no. : 0 420 233 327

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3 ltr

1st version kW : 160.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

L27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.00...12.10

Del.quantity cm³/ : 11.8...12.0

100 s: (11.6...12.2)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 118.5...120.5

1000 : (116.5...122.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 52...60

Testing:

1st rack travel in: 11.00
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1365...1375
3rd rack travel in: 4.00
Speed rpm : 1360...1390
4th rack travel in: 1450
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.40...5.60

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 12.00...12.10
2nd speed rpm : 750
Rack travel in m: 12.50...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 125.0...129.0
1000 s: (123.0...131.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.40...5.60
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921144

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 21.04.93
 Replaces : —
 Test oil : ISO-4113

Combination no. : 0 400 866 191

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -66R
 Governor no. : 0 420 233 305

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CTA 8.3 ltr.

1st version kW : 157.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

M01

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.00...12.10

Del.quantity cm³/ : 11.2...11.4

100 s: (11.0...11.6)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 6.0...6.5

Del.quantity cm³/ : 1.5...1.9

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 112.5...114.5

1000 : (110.5...116.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 11.00
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 13.00
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 6.00...6.50

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.00...12.10
2nd speed rpm : 750
Rack travel in m: 13.40...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 133.5...137.5
1000 s: (131.5...139.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.00...6.50
Del. quantity cm³/ : 15.5...19.5
1000 s: (13.0...22.0)

MO2

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921159

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 192
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100ADC2190
 -67R
 Governor no. : 0 420 233 306

Customer-spec. information
 Customer : C.D.C.

Engine : 6 C 8.3 ltr.
 1st version kW : 112.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 017
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

M03

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 11.30...11.40
 Del.quantity cm³/ : 10.5...10.7
 100 s: (10.3...10.9)
 Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.5...5.7
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.2)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 105.5...107.5
 1000 : (103.5...109.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 42...50

Testing:

1st rack travel in: 10.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1205...1215
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.50...5.70

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921137

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 193
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -68R
 Governor no. : 0 420 233 307

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 138.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

M05

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.40...11.50

Del. quantity cm³/ : 10.7...10.9

100 s: (10.5...11.1)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 750.0

Rack travel in mm : 12.6...12.8

Del. quantity cm³/ : 12.5...12.9

100 s: (12.3...13.1)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 107.5...109.5

1000 : (105.5...111.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 10.40
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1225...1235
3rd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 27...35
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.40...11.50
2nd speed rpm : 750
Rack travel in m: 12.60...12.80

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.40
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 14.5...18.5
1000 s: (12.0...21.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921094

Limit shutoff stop screw to 1.0 mm.

MO6

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 194
 Injection pump
 Pump designation : PES6A100D320/3RS2763
 EP type number : 0 410 806 006
 Governor
 Governor design. : RSV415...1175AOC2190
 -69R
 Governor no. : 0 420 233 308

Customer-spec. information
 Customer : C.D.C

Engine : 6 CT

1st version kW : 129.0
 Rated speed : 2350

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

M07

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1175
 Rack travel in mm : 10.40...10.50
 Del.quantity cm³/ : 9.8...10.0
 100 s: (9.6...10.2)
 Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 415.0
 Rack travel in mm : 5.1...5.3
 Del.quantity cm³/ : 1.4...1.8
 100 s: (1.2...2.1)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1175
 Del.quantity : 98.5...100.5
 1000 : (96.5...102.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 56...64

Testing:

1st rack travel in: 9.40
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1305...1315
3rd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1400
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 32...40
Setting point w/out bumper spring
Speed rpm : 415
Rack travel in mm : 4.7

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 415
Rack travel in mm : 5.10...5.30

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1175
Rack travel in m: 10.40...10.50
2nd speed rpm : 800
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del. quantity cm³/ : 101.0...105.0
1000 s: (99.0...107.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 415
Rack travel in mm : 5.10...5.30
Del. quantity cm³/ : 14.5...18.5
1000 s: (12.0...21.0)

M08

Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921135

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 197

Injection pump
 Pump designation : PES6A100D320/3RS2691
 -4

EP type number : 9 410 230 030
 Governor
 Governor design. : RSV450...1100AOC2238
 -3R

Governer no. : 0 420 233 330

Customer-spec. information

Customer : C.B.C.

Engine : 6CT830

1st version kW : 151.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

M09

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 12.10...12.20
 Del.quantity cm³/ : 11.9...12.1
 100 s: (11.7...12.3)
 Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 450.0
 Rack travel in mm : 5.4...5.6
 Del.quantity cm³/ : 1.5...1.9
 100 s: (1.2...2.1)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 900
 Del.quantity : 119.0...121.0
 1000 : (117.0...123.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 42...50

Testing:
1st rack travel in: 11.10
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1205
3rd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.40...5.60

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.10...12.20
2nd speed rpm : 750
Rack travel in m: 13.20...13.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.20...13.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.40...10.60
2nd pressure hPa : 385
Rack travel in m: 11.40...11.50
3rd pressure hPa : 560
Rack travel in m: 12.60...13.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 750
Del. quantity cm³/ : 136.5...140.5
1000 s: (134.5...142.5)
Aneroid pressure h: -

M10

Speed rpm : 500
Del. quantity cm³/ : 80.0...82.0
1000 s: (78.0...84.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack travel: 11.10
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.40...5.60
Del. quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921121

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 366 198
 Injection pump
 Pump designation : PES6A100D320/3RS2763
 EP type number : 0 410 806 006
 Governor
 Governor design. : PSV400...950A0C2238
 -4R
 Governor no. : 0 420 233 331

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT830

1st version kw : 145.2
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

M11

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 12.10...12.20

Del.quantity cm³/ : 12.0...12.2

100 s: (11.8...12.4)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.2...5.4

Del.quantity cm³/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Aneroid pressure h: 900

Del.quantity : 120.5...122.5

1000 : (118.5...124.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 37...45

Testing:

1st rack travel in: 11.10
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1065...1075
3rd rack travel in: 4.00
Speed rpm : 1070...1100
4th rack travel in: 1150
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 400
Rack travel in mm : 5.20...5.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.80
2nd pressure hPa : 220
Rack travel in m: 11.10...11.20
3rd pressure hPa : 305
Rack travel in m: 11.40...11.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 89.5...93.5
1000 s: (87.5...95.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 990...1000

M12

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.20...5.40
Del.quantity cm3/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921127

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 199

Injection pump
 Pump designation : PES6A100D320/3RS2691
 -4

EP type number : 9 410 230 030
 Governor
 Governor design. : RSV450...1100AOC2241
 -1R

Governer no. : 0 420 233 332

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT830

1st version kW : 134.2
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

M13

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

 Rack travel in mm : 11.20...11.30

 Del.quantity cm³/ : 10.3...10.5
 100 s: (10.1...10.7)

 Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 450.0
 Rack travel in mm : 5.7...5.9
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.4...2.3)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 900
 Del.quantity : 103.5...105.5
 1000 : (101.5...107.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 49...57

Testing:

1st rack travel in: 10.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1220...1230
3rd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 29...37
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.20...11.30
2nd speed rpm : 750
Rack travel in m: 12.00...12.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.00...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.70...10.80
2nd pressure hPa : 305
Rack travel in m: 11.10...11.20
3rd pressure hPa : 425
Rack travel in m: 11.50...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 750
Del.quantity cm3/ : 112.5...116.5
1000 s: (110.5...118.5)
Aneroid pressure h: -

M14

Speed rpm : 500
Del.quantity cm3/ : 80.0...82.0
1000 s: (78.0...84.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.70...5.90
Del.quantity cm3/ : 16.5...20.5
1000 s: (14.0...23.0)
Spread cm3 : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921120

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 200
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -72R
 Governor no. : 0 420 233 311

Customer-spec. information
 Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 126.8
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness : 6.00x2.00x600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

M15

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 9.6...9.8

100 s: (9.4...10.0)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.8...6.0

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 96.5...98.5

1000 : (94.5...100.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 9.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1210...1220
3rd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 27...35
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.70...10.80
2nd speed rpm : 750
Rack travel in m: 12.30...12.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 119.5...123.5
1000 s: (117.5...125.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)

Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921133

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 201
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV470...1100AOC2190
 -73R
 Governor no. : 0 420 233 312

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT830

1st version kW : 150.6
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

M17

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 12.10...12.20
 Del. quantity cm3/ : 11.5...11.7
 100 s: (11.3...11.9)
 Spread cm3 : 0.4
 100 s: (0.6)

2nd speed rpm : 470.0
 Rack travel in mm : 5.7...5.9
 Del. quantity cm3/ : 1.6...2.0
 100 s: (1.4...2.3)
 Spread cm3 : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 115.0...117.0
 1000 : (113.0...119.0)
 Spread cm3 : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 48...56

Testing:

1st rack travel in: 11.10
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1235...1245
3rd rack travel in: 4.00
Speed rpm : 1235...1265
4th rack travel in: 1325
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 470
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 470
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.10...12.20
2nd speed rpm : 750
Rack travel in m: 13.00...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 128.0...132.0
1000 s: (126.0...134.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 470
Rack travel in mm : 5.70...5.90
Del. quantity cm³/ : 16.5...20.5
1000 s: (14.0...23.0)

M18

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921129

Adjustment without torque-control.
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 21.04.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 202
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1000AOC2190
 -74R
 Governor no. : 0 420 233 313

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 151.4
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

M19

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.10...12.20

Del.quantity cm³/ : 12.3...12.5

100 s: (12.1...12.7)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.6...5.8
 Del.quantity cm³/ : 1.4...1.8
 100 s: (1.1...2.0)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Del.quantity : 123.0...125.0
 1000 : (121.0...127.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 36...44

Testing:

1st rack travel in: 11.10
Speed rpm : 1050...1060
2nd rack travel in: 4.00
Speed rpm : 1110...1120
3rd rack travel in: 4.00
Speed rpm : 1105...1135
4th rack travel in: 1175
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del. quantity cm³/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks: : C.D.C. # 3921142

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 203
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -75R
 Governor no. : 0 420 233 314

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CTA 8.3ltr
 1st version kW : 174.5
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder assembly : 1 688 901 101
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

M21

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 12.70...12.80
 Del. quantity cm³/ : 12.7...12.9
 100 s : (12.5...13.1)
 Spread cm³ : 0.4
 100 s : (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.8...6.0
 Del. quantity cm³/ : 1.7...2.1
 100 s : (1.4...2.3)
 Spread cm³ : 0.6
 100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 127.0...129.0
 1000 : (125.0...131.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 39...47

Testing:

1st rack travel in: 11.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1210...1220
3rd rack travel in: 4.00
Speed rpm : 1210...1240
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 155.0...175.0
1000 s: (150.0...180.0)
Rack travel in mm : 16.20...16.40

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 17.0...21.0
1000 s: (14.5...23.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921126

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 204
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...110DAOC2190
 -76R
 Governor no. : 0 420 233 315

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3ltr

1st version kW : 173.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

M23

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 10.70...10.30
 Del.quantity cm3/ : 9.8...10.0
 100 s : (9.6...10.2)
 Spread cm3 : 0.4
 100 s : (0.6)

2nd speed rpm : 425.0
 Rack travel in mm : 5.6...5.8
 Del.quantity cm3/ : 1.6...2.0
 100 s : (1.3...2.2)
 Spread cm3 : 0.6
 100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 2.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 98.0...100.0
 1000 : (96.0...102.0)
 Spread cm3 : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 43...51

Testing:

1st rack travel in: 9.70
Speed rpm : 1170...1180
2nd rack travel in: 4.00
Speed rpm : 1235...1245
3rd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 25...33
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 5.60...5.80

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.70
Speed rpm : 1170...1180

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
100G s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.60...5.80
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921163

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 205

Injection pump
 Pump designation : PES6A100D32D/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1050AOC2190
 -77R

Governer no. : 0 420 233 316

Customer-spec. information
 Customer : C.D.C

Engine : 6 CT 8.3

1st version kW : 154.4
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

M25

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. ro. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.40...12.50

Del.quantity cm³/ : 12.5...12.7

100 s: (12.3...12.9)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 1.5...1.9

100 s: (1.3...2.2)

Spread cm³ : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 125.5...127.5

1000 : (123.5...129.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 11.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1140...1150
3rd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1275
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.50...5.70

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del.quantity cm³/ : 15.5...19.5
1000 s: (13.0...22.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921164

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 206
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1250A0C2190
 -78R
 Governor no. : 0 420 233 317
 Customer-spec. information
 Customer : C.D.C.
 Engine : 6 CTA 8.3
 1st version kW : 131.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

M27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250
 Rack travel in mm : 10.80...10.90
 Del. quantity cm³/ : 9.9...10.1
 100 s : (9.7...10.3)
 Spread cm³ : 0.4
 100 s : (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.2...5.4
 Del. quantity cm³/ : 1.2...1.6
 100 s : (1.0...1.9)
 Spread cm³ : 0.6
 100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Del. quantity : 99.5...101.5
 1000 : (97.5...103.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control Lever
 position degrees: 51...59

Testing:

1st rack travel in: 9.80
Speed rpm : 1325...1335
2nd rack travel in: 4.00
Speed rpm : 1400...1410
3rd rack travel in: 4.00
Speed rpm : 1400...1430
4th rack travel in: 1.500
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 26...34
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.20...5.40

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1325...1335

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 12.5...16.5
1000 s: (10.0...19.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921107

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 207
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1100AOC2190
 -79R
 Governor no. : 0 420 233 318

Customer-spec. information
 Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 129.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

NO1

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.60...10.70

Del.quantity cm³/ : 9.5...9.7
 100 s: (9.3...9.9)

Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.8...6.0
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.3...2.2)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 95.5...97.5
 1000 : (93.5...99.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 41...49

Testing:

1st rack travel in: 9.60
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1200...1210
3rd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921143

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

NO2

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 208
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...110DA0C2190
 -80R
 Governor no. : 0 420 233 319

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 156.6
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

NO3

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 12.4...12.6

100 s: (12.2...12.8)

Spread cm³ : 0.4

100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.6...5.8
 Del.quantity cm³/ : 1.5...1.9
 100 s: (1.2...2.1)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 124.5...126.5
 1000 : (122.5...128.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 40...48

Testing:

1st rack travel in: 11.30
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1205
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.30
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (125.0...155.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:
: C.D.C. # 3921140

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 209
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1050AOC2190
 -81R
 Governor no. : 0 420 233 320

Customer-spec. information
 Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 89.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

N05

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 9.60...9.70

Del.quantity cm³/ : 7.9...8.1

100 s : (7.7...8.3)

Spread cm³ : 0.4

100 s : (0.6)

2nd speed rpm : 400.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 1.4...1.8

100 s : (1.2...2.1)

Spread cm³ : 0.6

100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 79.5...81.5

1000 : (77.5...83.5)

Spread cm³ : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 8.60
Speed rpm : 1095...1105
2nd rack travel in: 4.00
Speed rpm : 1135...1145
3rd rack travel in: 4.00
Speed rpm : 1125...1155
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.60...5.80

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 9.60...9.70
2nd speed rpm : 750
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 86.5...90.5
1000 s: (84.5...92.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.60
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 14.5...18.5
1000 s: (12.0...21.0)

N06

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921089

Limit shutoff stop screw to 1.0 mm.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-41i3
 Combination no. : 0 400 866 210
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1050A7C2216
 -6R
 Governor no. : 0 420 233 328

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CTA 8.3

1st version kW : 141.7
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

N07

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 11.10...11.20
 Del.quantity cm³/ : 10.0...10.2
 100 s: (9.8...10.4)
 Spread cm³ : 0.4
 100 s: (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.9...6.1
 Del.quantity cm³/ : 1.8...2.2
 100 s: (1.5...2.4)
 Spread cm³ : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del.quantity : 100.5...102.5
 1000 : (98.5...104.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 43...51

Testing:

1st rack travel in: 10.10
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1180
3rd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 25...34
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.90...6.10

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.10...11.20
2nd speed rpm : 750
Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 126.0...130.0
1000 s: (124.0...132.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.90...6.10
Del. quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)

N08

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3924685

Limit shutoff stop screw to 1.0 mm.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 400 866 211

Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV400...1050AOC2216
 -7R
 Governor no. : 0 420 233 329

Customer-spec. information
 Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 141.7
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 27...29

N09

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
 Rack travel in mm : 11.90...12.00
 Del. quantity cm³/ : 11.5...11.7
 100 s : (11.3...11.9)
 Spread cm³ : 0.4
 100 s : (0.6)

2nd speed rpm : 400.0
 Rack travel in mm : 5.8...6.0
 Del. quantity cm³/ : 1.6...2.0
 100 s : (1.3...2.2)
 Spread cm³ : 0.6
 100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del. quantity : 115.0...117.0
 1000 : (113.0...119.0)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 42...50

Testing:

1st rack travel in: 10.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1155...1165
3rd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.90...12.00
2nd speed rpm : 750
Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del. quantity cm³/ : 134.0...138.0
1000 s: (132.0...140.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 135.0...155.0
1000 s: (132.0...158.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del. quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)

N10

Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921104

Limit shutoff stop screw to 1.0 mm.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 212
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 030
 Governor
 Governor design. : RSV450...1100A0C2190
 Governor no. : 0 420 233 321

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT830

1st version kW : 117.1
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

N11

Test pressure, bar: 27...29
 Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 10.20...10.30
 Del. quantity cm³/ : 8.9...9.1
 100 s : (8.7...9.3)
 Spread cm³ : 0.4
 100 s : (0.6)

2nd speed rpm : 450.0
 Rack travel in mm : 5.7...5.9
 Del. quantity cm³/ : 1.4...1.8
 100 s : (1.2...2.1)
 Spread cm³ : 0.6
 100 s : (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 89.5...91.5
 1000 : (87.5...93.5)
 Spread cm³ : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 47...55

Testing:

1st rack travel in: 9.20
 Speed rpm : 1140...1150
 2nd rack travel in: 4.00
 Speed rpm : 1200...1210
 3rd rack travel in: 4.00
 Speed rpm : 1195...1225
 4th rack travel in: 1.300
 Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
 position degrees: 29...37
 Setting point w/out bumper spring
 Speed rpm : 450
 Rack travel in mm : 5.3

Testing:

Speed rpm : 100
 Minimum rack travel: 19.00
 Speed rpm : 450
 Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
 1st speed rpm : 1100
 Rack travel in m: 10.20...10.30
 2nd speed rpm : 750
 Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
 Del.quantity cm3/ : 88.5...92.5
 1000 s: (86.5...94.5)

BREAKAWAY

1st version

1mm rack travel less than
 full load rack tr: 9.20
 Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm3/ : 145.0...165.0
 1000 s: (140.0...170.0)
 Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 450
 Rack travel in mm : 5.70...5.90

Del.quantity cm3/ : 14.5...18.5
 1000 s: (12.0...21.0)
 Spread cm3 : 6.00
 1000 s: (8.00)

Remarks:

: C.D.C. # 3921092
 Adjustment without torque-control
 spring retainer with 0,5 mm less
 control-rod travel. Increase in
 full-load delivery with torque-control
 spring retainer.

Start-of-delivery mark 11° cam angle
 after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 15.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 400 866 213
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 -4
 EP type number : 9 410 230 030
 Governor
 Governor design. : RSV450...1100AOC2190
 -83R
 Governor no. : 0 420 233 322

Customer-spec. information
 Customer : C.D.C.

Engine : 6CT830

1st version kW : 150.6
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

N13

Test pressure, bar: 27...29
 Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Phasing :
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 12.10...12.20
 Del.quantity cm3/ : 12.0...12.2
 100 s: (11.8...12.4)
 Spread cm3 : 0.4
 100 s: (0.6)

2nd speed rpm : 450.0
 Rack travel in mm : 5.7...5.9
 Del.quantity cm3/ : 1.4...1.8
 100 s: (1.2...2.1)
 Spread cm3 : 0.6
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 120.0...122.0
 1000 : (118.0...124.0)
 Spread cm3 : 4.00
 1000 : (6.50)

RATED SPEED

1st version
 Control lever
 position degrees: 46...54

Testing:
1st rack travel in: 11.10
Speed rpm : 1155...1165
2nd rack travel in: 4.00
Speed rpm : 1245...1255
3rd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.3

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.70...5.90

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.10...12.20
2nd speed rpm : 750
Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 134.0...138.0
1000 s: (132.0...140.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 1155...1165

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...165.0
1000 s: (140.0...170.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.70...5.90

Del.quantity cm³/ : 14.5...18.5
1000 s: (12.0...21.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921093
Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
Edition : 15.06.93
Replaces : -
Test oil : ISO-4113

Combination no. : 0 400 866 214

Injection pump
Pump designation : PES6A100D320/3RS2691
-4

EP type number : 9 410 230 030
Governor
Governor design. : RSV450...1100AOC2190
-84R

Governer no. : 0 420 233 323

Customer-spec. information
Customer : C.D.C.

Engine : 6CT830

1st version kW : 134.2
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

N15

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.20...11.30

Del.quantity cm3/ : 10.3...10.5

100 s: (10.1...10.7)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 450.0
Rack travel in mm : 5.7...5.9
Del.quantity cm3/ : 1.6...2.0

100 s: (1.4...2.3)

Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100
Del.quantity : 103.5...105.5
1000 : (101.5...107.5)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:

1st rack travel in: 10.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1220...1230
3rd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 31...39
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.20...11.30
2nd speed rpm : 750
Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 111.5...115.5
1000 s: (109.5...117.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 138.0...158.0
1000 s: (133.0...163.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.70...5.90

Del.quantity cm³/ : 16.5...20.5
1000 s: (14.0...23.0)
Spread cm³ : 6.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921095
Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 18.06.93
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 498
 Injection pump
 Pump designation : PE6P11QA72DRS441
 EP type number : 0 411 816 148
 Governor
 Governor design. : RQ225/1200PA617-1
 Governor no. : 0 421 801 254

Customer-spec. information
 Customer : DAF

Engine : DHS825

1st version kW : 184.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.20...12.30

Del. quantity cm³/ : 13.7...13.9

100 s: (13.4...14.1)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 225.0

Rack travel in mm : 5.5...5.7

Del. quantity cm³/ : 1.0...1.5

100 s: (0.7...1.7)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 1000

Aneroid pressure h: 700

Del. quantity : 137.0...139.0

1000 : (134.5...141.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point: Speed rpm : 600

Rack travel in mm : 15.8

Testing: 1st rack travel in: 11.20

Speed rpm : 1235...1251

2nd rack travel in: 4.00

Speed rpm : 1310...1340

4th rack travel in: 1450

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 225
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack trave: 6.70
Speed rpm : 225
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00
Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 12.20...12.30
2nd speed rpm : 1190
Rack travel in m: 12.10...12.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 12.20...12.30

Measurement

Speed 1/min : 600
1st pressure hPa : -
Rack travel in m: 10.10...10.20
2nd pressure hPa : 360
Rack travel in m: 11.70...11.80
3rd pressure hPa : 290
Rack travel in m: 10.60...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 92.0...94.0
1000 s: (89.5...96.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 1235...1251

N18

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 245.0...285.0
1000 s: (241.0...289.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 225
Rack travel in mm : 5.50...5.70
Del.quantity cm3/ : 10.0...15.0
1000 s: (7.5...17.5)
Spread cm3 : 4.50
1000 s: (7.50)

Remarks:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11.1 r
 Edition : 15.06.93
 Replaces : 02.93
 Test oil : ISO-4113
 Combination no. : 0 402 646 887
 Injection pump
 Pump designation : PE6P120A72ORS718E
 EP type number : 0 412 626 832
 Governor
 Governor design. : RGV200...950PA725-7
 Governor no. : 0 421 813 803

Customer-spec. information
 Customer : SCANIA

Engine : D5C 11 23

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 2.50
 Test nozzle holder
 assembly : 1 688 901 104
 Opening
 pressure, bar : 250...253
 Orifice plate
 diameter mm : 0,7
 Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600
 (A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 4.40...4.50
 : (4.35...4.55)
 Rack travel in mm : 9.00...12.00

N19

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 13.80...13.90
 Del.quantity cm³/ : 25.1...25.3
 100 s : (24.8...25.6)
 Spread cm³ : 0.8
 100 s : (1.2)
 2nd speed rpm : 250.0
 Rack travel in mm : 4.6...5.0
 Del.quantity cm³/ : 1.3...1.9
 100 s : (1.0...2.2)
 Spread cm³ : 0.4
 100 s : (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225
 travel mm : 1.20...1.60
 2nd speed rpm : 350
 travel mm : 2.40...3.00
 3rd speed rpm : 650
 travel mm : 4.50...5.10
 4th speed rpm : 1045
 travel mm : 8.40...8.60
 5th speed rpm : 1125
 travel mm : 9.30...9.70

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1150
 Rack travel in mm : 7.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 1500
 Del.quantity : 251.0...253.0
 1000 : (248.0...256.0)

Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 110...118

Testing:
1st rack travel in: 12.80
Speed rpm : 990...1000
2nd rack travel in: 4.00
Speed rpm : 1110...1140
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 60...68

Testing:
Speed rpm : 150
Minimum rack travel: 6.00
Speed rpm : 250
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 370...430

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1500
Rack travel mm : 13.80...13.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.20...10.60
2nd pressure hPa : 440
Rack travel in m: 12.00...12.10
3rd pressure hPa : 270
Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1500
Speed rpm : 950
Del.quantity cm³/ : 228.0...236.0
1000 s: (226.0...238.0)
Aneroid pressure h: -
Speed rpm : 500

N20

Del.quantity cm³/ : 152.0...154.0
1000 s: (149.0...157.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.80
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 145.0...185.0
1000 s: (141.0...189.0)
Rack travel in mm : 10.20...10.60

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.60...4.80

Remarks:
Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring
preload on new delivery-valve holders
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO
diaphragm.

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 01.03.93
 Replaces : 10.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 968
 Injection pump
 Pump designation : PE6P120A32ORS7248
 EP type number : 0 412 626 861
 Governor
 Governor design. : RQV275...1150PA986
 Governor no. : 0 421 813 920

Customer-spec. information
 Customer : DAF

Engine : RS 222 L
 1st version kW : 222.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025
 Inlet press., bar : 1.50
 Overflow quantity min. 1/h: 120...140
 Test nozzle holder assembly : 1 688 901 105
 Opening pressure, bar : 207...210
 Orifice plate diameter mm : 0,8
 Test lines : 1 680 750 089
 Outside diameter x Wall thickness x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 14.00...15.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 11.7...12.7
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 1000
 Rack travel in mm : 12.20...12.30
 Del. quantity cm³/ : 18.4...18.6
 100 s: (18.1...18.9)
 Spread cm³ : 0.5
 100 s: (0.9)
 2nd speed rpm : 275.0
 Rack travel in mm : 5.3...5.5
 Del. quantity cm³/ : 1.3...1.9
 100 s: (1.0...2.2)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275
 travel mm : 1.20...1.60
 2nd speed rpm : 315
 travel mm : 1.80...2.20
 3rd speed rpm : 1205
 travel mm : 8.10...8.50
 4th speed rpm : 1340
 travel mm : 9.70...9.90

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1325
 Rack travel in mm : 9.90...12.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Aneroid pressure h: 1000
Del.quantity : 184.0...186.0
1000 : (181.0...189.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 115...123

Testing:
1st rack travel in: 11.20
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1295...1325
4th rack travel in: 1450
Speed rpm : 0.00...1.40

LOW IDLE 1
Control lever
position degrees: 79...87

Testing:
Speed rpm : 175
Minimum rack travel: 6.70
Speed rpm : 275
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION
Speed rpm : 315...365

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 12.20...12.30

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.30...9.50
2nd pressure hPa : 420
Rack travel in m: 11.60...11.70
3rd pressure hPa : 240
Rack travel in m: 10.30...10.50

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 120.0...122.0
1000 s: (117.0...125.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 1190...1200

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.60...4.80

Remarks:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 01.03.93
 Replaces : 03.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 969
 Injection pump
 Pump designation : PE6P120A320RS7248Z
 EP type number : 0 412 626 862
 Governor
 Governor design. : RQV275...1150PA986
 Governor no. : 0 421 813 920

Customer-spec. information
 Customer : DAF

Engine : RS 200 L

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 120...140

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 14.00...15.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 10.8...11.8
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.30...11.40

Del.quantity cm³/ : 16.4...16.5
 100 s: (16.1...16.9)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 275.0
 Rack travel in mm : 5.2...5.4
 Del.quantity cm³/ : 1.3...1.9
 100 s: (1.0...2.2)
 Spread cm³ : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275
 travel mm : 1.20...1.60
 2nd speed rpm : 315
 travel mm : 1.80...2.20
 3rd speed rpm : 1205
 travel mm : 8.10...8.50
 4th speed rpm : 1340
 travel mm : 9.70...9.90

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1335
 Rack travel in mm : 9.00...11.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000
Aneroid pressure h: 1000
Del. quantity : 164.0...166.0
1000 : (161.0...169.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:
1st rack travel in: 10.30
Speed rpm : 1180...1190
2nd rack travel in: 4.00
Speed rpm : 1275...1305
4th rack travel in: 1450
Speed rpm : 0.00...1.40

LOW IDLE 1
Control lever
position degrees: 79...87

Testing:
Speed rpm : 175
Minimum rack travel: 6.70
Speed rpm : 275
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION
Speed rpm : 315...365

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 11.30...11.40

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.10...9.30
2nd pressure hPa : 340
Rack travel in m: 10.70...10.80
3rd pressure hPa : 200
Rack travel in m: 9.60...9.80

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 600

N24

Del. quantity cm³/ : 115.0...117.0
1000 s: (112.0...120.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1180...1190

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.60...4.80

Remarks:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 01.03.93
 Replaces : 10.92
 Test oil : ISO-4113

Combination no. : 0 402 646 970

Injection pump
 Pump designation : PE6P120A32ORS7248Y
 EP type number : 0 412 626 863
 Governor
 Governor design. : RQV275...1150PA986
 Governor no. : 0 421 813 920

Customer-spec. information
 Customer : DAF

Engine : RS 180 L

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 120...140

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

N25

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 14.00...15.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 10.2...11.2
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 10.70...10.80

Del. quantity cm³/ : 14.5...14.7

100 s: (14.2...15.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.3...5.5

Del. quantity cm³/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275

travel mm : 1.20...1.60

2nd speed rpm : 315

travel mm : 1.80...2.20

3rd speed rpm : 1205

travel mm : 8.10...8.50

4th speed rpm : 1340

travel mm : 9.70...9.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 8.40...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000
Aneroid pressure h : 1000
Del. quantity : 145.5...147.5
1000 : (142.5...150.5)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116...124

Testing:

1st rack travel in: 9.70
Speed rpm : 1180...1190
2nd rack travel in: 4.00
Speed rpm : 1265...1295
4th rack travel in: 1450
Speed rpm : 0.00...1.40

LOW IDLE 1

Control lever
position degrees: 79...87

Testing:

Speed rpm : 175
Minimum rack trave: 6.70
Speed rpm : 275
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 315...365

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 10.70...10.80

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 9.40...9.60
2nd pressure hPa : 260
Rack travel in m: 10.30...10.40
3rd pressure hPa : 190
Rack travel in m: 9.80...10.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600

Del. quantity cm³/ : 119.0...121.0
1000 s: (116.0...124.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1180...1190

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.60...4.80

Remarks:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF
 Edition : 01.03.93
 Replaces : 03.92
 Test oil : ISO-4113
 Combination no. : 0 402 646 971
 Injection pump
 Pump designation : PE6P120A32URS7218Z
 EP type number : 0 412 626 847
 Governor
 Governor design. : RQV275...1000PA939-2
 Governor no. : 0 421 813 986

Customer-spec. information
 Customer : DAF

Engine : WS 242 L

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 95...115

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.30...5.40
 : (5.25...5.45)
 Rack travel in mm : 14.00...15.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.90...5.10
 & maximum rack tra: 13.5...14.5
 Difference ° CS : 2.25...3.75

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 13.80...13.90

Del.quantity cm³/ : 20.5...20.7

100 s: (20.2...21.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 6.1...6.3

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1045

travel mm : 7.70...8.20

2nd speed rpm : 275

travel mm : 1.10...1.60

3rd speed rpm : 380

travel mm : 2.40...2.90

4th speed rpm : 675

travel mm : 4.20...4.70

5th speed rpm : 1310

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 12.60...15.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 850
Aneroid pressure h: 1000
Del. quantity : 205.0...207.0
1000 : (202.0...210.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 115...123

Testing:
1st rack travel in: 12.80
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1250
Speed rpm : 0.00...1.40

LOW IDLE 1
Control lever
position degrees: 78...86

Testing:
Speed rpm : 175
Minimum rack trave: 7.50
Speed rpm : 275
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION
Speed rpm : 300...350

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 1000
Rack travel mm : 13.80...13.90

Measurement
Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 11.70...11.90
2nd pressure hPa : 420
Rack travel in m: 13.30...13.40
3rd pressure hPa : 260
Rack travel in m: 12.20...12.40

FUEL DELIVERY CHARACTERISTICS

N28

1st version
Aneroid pressure h: -
Speed rpm : 600
Del. quantity cm³/ : 147.0...149.0
1000 s: (144.0...152.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.80
Speed rpm : 1040...1050

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.90...5.10

Remarks:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery